

THE ARCHITECTURAL MAGAZINE.

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ORIGINAL COMMUNICATIONS.

ART. I. *On Unity of System in Architecture.* By the CONDUCTOR.

THE want of unity of system is in no instance more obvious than in the application of porticoes with columns, &c., to houses, or other structures, in which there are neither columns, pilasters, nor architraves indicated in the walls. This is as absurd in architecture, as it would be, in dress, in this country and at the present time, for a person habited in the coarsest woollen cloth to decorate himself in an embroidered silk waistcoat. Porticoes placed against common walls are to be met with in every street, and are not unfrequent in the case of churches or other public buildings. In the latter case, the error is glaringly absurd in proportion to the magnitude of the edifice.

Perhaps it will be asked whether there are to be no porticoes at all, in cases where no columns or pilasters are indicated in the main body of the edifice. Our answer is, there should be no Grecian or Roman porticoes. No porticoes with classical columns ! How then are porticoes or open shelters to be formed for the entrance doors of plain brick or stone houses, that indicate neither classical nor Gothic architecture ? The answer we have to give is, by props or pillars, formed of what may be termed slices or sections, taken from the walling ; and connected with it by corresponding projections, and by architraves or lintels similar to those which cover the doors or windows. Such porticoes with rectilinear props may have every useful quality of those which have columns, and belong to classic architecture ; while, at the same time they appear to belong to, and to have arisen out of, the construction of the wall against which they are placed. In a brick-built front the props or pillars may be of brick ; and in a stone or stucco front of stone or stucco. They may even be of stone, real or imitative, when placed against brick fronts ; on the same principle that facings, sills, and lintels, to the doors and windows, in brick fronts, are sometimes of stone, viz., that of enhancing the interest and beauty of the more important parts of a composition, by

the employment of more costly materials and more skilful labour. But if porticoes may be made of stone, or of an imitation of stone, why may not the props be rounded like classical columns? They should not be made round in general, because there is nothing round in the system of the walls which support the roof of the house; but in extensive fronts, and under certain circumstances, there may be no objection to forming the props cylindrical; though, in that case, care must be taken, never, by details, proportions, or ornaments, to create an allusion to classical architecture, and never to let it be imagined by the spectator, that any of the Greek or Roman orders were intended to be imitated.

The porticoes in London which are constructed in violation of the principle of unity of system are innumerable; but there is scarcely one erected in conformity with this principle which does not belong to the classical style, and to a large edifice. The invention and construction of appropriate street porticoes for plain brick houses is, therefore, a subject which demands the immediate attention of the architect of reason, that is, of the architect who forms his composition according to the fitness of things, without being the slave of custom and precedent.

Where a veranda, covered balcony, or projection of any kind open and covered with a roof, is to be formed, the props or pillars should, in like manner, belong to the system on which the walls are built. The superior effect of this mode, in the case of a veranda round a plain square brick house, supported by brick props, as contrasted with one in front of a plain stuccoed house, composed of round classical columns, may be seen in Porchester Terrace and Craven Hill, Bayswater. An instance of unity of system in classical architecture being worked out into all the various details, both in the portico and in the elevation, will be found in the back front of the Law Institution, which looks into Bell Yard.

It appears to us that two of the most desirable improvements in the street architecture of London, and of our other large towns, are, the introduction of porticoes, strictly in accordance with the system or kind of design in which the walls against which they are placed are built; and the getting rid of that abominable prostitution of classical architecture, in which columns are applied as ornaments to shop fronts. Not that we would exclude classical columns either from porticoes or from the fronts of shops, but that we would never employ them in either case, when they did not harmonise with the general system of the elevation, or, in the case of shop fronts, when they were either merely laid against the wall as ornaments, or made to appear as if they supported all the upper part of the wall. In the one case they lose their dignity by no longer having the

appearance of being employed as supports, and in the other case they lose their dignity by appearing to support too much.

But modern architects and builders can do nothing without precedent; nothing without the five classical orders, or the five or six styles of Gothic architecture. Their minds are so imbued with these, that they can invent nothing that does not belong by precedent either to the one style or to the other. It is for the rising generation of architects to free themselves from such trammels; and to weigh the knowledge left us by our ancestors in the balance of reason.

ART. II. *On the Studies and Qualifications necessary for an Architect.*
From the French of Quatremère de Quincy. By P.

THIS word, derived from the Greek, and composed of two words of that language, *archos* and *tektón*, signifies the chief of the workmen. It is literally the definition of one who superintends a building. Architecture has been defined as the art of building; but this art can only rank among those called the liberal arts, when it is practised according to principles taken from nature, and when it follows the rules which relate to those wants and gratifications of our eyes and of our minds, which require to be satisfied by the architect.

The etymology of this word sufficiently shows that, in Greece, the artist to whom it was given was, in fact, the supreme director of the labours and works which are combined in the formation of an edifice. Therefore, the superior nature of this office leads us to suppose that he who filled it possessed a rare combination of talents and general knowledge. The number of qualifications which Vitruvius exacts from an architect conveys to us the highest idea of the powers which the ancients recognised, both in the art and in its professors.

"In this art," says the Roman architect, whose theory we shall greatly abridge, "as in every thing else, we distinguish what is signified from what signifies. The thing signified is that of which we treat, and that which signifies is the description of it, set forth by reason, and supported by science. Thus, in architecture, we separate practice from theory. The first is executed by the hands, which give to the material, whatever it may be, its proper form. The second demonstrates; it explains works executed by the aid of judgment, and by the rules of proportion. Thence it results that architects without theory, assisted by practice only, and limiting themselves to the executive department, have never been able to acquire any name by their works. The same thing has likewise happened to those

who, confining themselves to theoretic knowledge, have failed in their object by pursuing its shadow.

"The reason why it is necessary that the architect should be equally acquainted with practice and theory is, that his imaginative and executive powers should alike be cultivated; for genius without perseverance, or perseverance without genius, can never form a perfect artist.

"The architect ought, therefore, to be able to write and draw, to have studied geometry, and not to be ignorant of arithmetic; he should know history, be skilled in philosophy, and have some acquaintance with music, besides a smattering of medicine, jurisprudence, and astronomy."

Pythius, one of the most celebrated architects of antiquity, who distinguished himself by the construction of the temple of Minerva at Priene, exacted from architects (as he expresses himself in a treatise he composed) a still more profound knowledge of each particular science than would be exercised by the professors of the sciences themselves. Vitruvius is more judicious, for he only requires a moderate knowledge of the different branches of science. He says, "it is neither possible nor necessary that the architect should be as good a grammarian as Aristarchus, as great a musician as Aristoxenes, as excellent a painter as Apelles, as skilful a sculptor as Myron or Polyclethus, or as learned a physician as Hippocrates. It is enough," adds he, "that he should not be ignorant of grammar, music, sculpture, and medicine; the mind of any one man not being capable of attaining perfection in such varied and eminent acquirements." To these particular or general studies, Vitruvius desires the architect to unite much perseverance and disinterestedness. "I know well," he continues, "that a great part of the world hold the opinion, that the chief end of wisdom is to render us capable of amassing great riches, and that there have been few men found, who have been fortunate enough to acquire wealth and reputation together, since, for the most part, their principal care is to seek for great employments. As for me, I have learned from my masters, that an architect ought to wait until he is solicited to undertake the conduct of a work; and that he cannot, without shame, make a request that would cause him to be regarded as an interested man. We know that we do not importune people to do them good, but to receive good from them. What would a person think, who was asked to permit his goods to be laid out to a great extent, except that he who required such a favour of him hoped to make some great profit to his detriment. This is the reason why people formerly, before employing an architect, made enquiries respecting his birth and education, and they trusted more to those who appeared diffident, than to those who affected great capability. The custom, like-

wise, of those times, was for architects to instruct only their own children or relations; or, at least, only those whom they judged capable of acquiring learning to the extent required from an architect, and for whose fidelity they could answer."

After this enumeration of the attainments which were considered necessary for the practice of architecture among the ancients, we ought not to wonder that Plato asserted "that a good architect was a rarity in Greece." In modern times, another reflection presents itself on the subject. If we compare the studies formerly exacted from the artist, with the present mode of teaching and learning architecture, we can hardly fail to arrive at the conclusion, that either the art has lost many of its difficulties, or that the greater part of those who profess it have shaken off many of the conditions which formerly were considered to constitute its perfection.

Nevertheless, if we except astronomy and music (arts which are less necessary now than formerly, for the construction of sundials and theatres), it is certain that the professors of the art of architecture cannot do without the other studies prescribed by Vitruvius; and that the wants of the moderns even render some additional ones also necessary. Historical and literary acquirements, therefore, are absolutely essential to modern architecture.

Vitruvius thought it necessary that an architect should know how to give a reason for every thing which connected his art with the facts and opinions of history; for example, for the origin of *Caryatides*, &c. How much more indispensable, then, must this erudition be now! for, from the very circumstance of the adoption of ancient art, the architect must employ an infinity of elemental and decorative parts in his architecture, of which he might make a use which would be inappropriate, and often ridiculous, if he were ignorant of their origin, and consequently of the purposes to which they ought to be applied. Besides, an architect is frequently obliged to explain his projects, by committing the substance of them to writing, or to illustrate his motives in a discourse before the learned. He must, therefore, know how to develop his ideas with method, clearness, facility, and consistency. Arithmetic and the mathematics are not less necessary to the architect in these days than in ancient times. He should not confine himself to the elements of the first, but pursue it to its utmost extent, both to assist him in the execution of his designs, and also to enable him to avoid the too common errors in valuations, into which superintendents in buildings are apt to fall, by false calculations.

The modern architect has more occasion for the help of geometry and mechanics, than the architect of antiquity. The kinds of structure used among most modern nations require

more of the combinations which are dependent upon these two sciences. Generally speaking, from the nature of the materials, and the simplicity of stonework, the designs, arrangements, and union of parts of the ancients demanded less art than is now most frequently required by the moderns, for complicated curves in roofs, or for furnishing to the most diversified plans the means of forming solid coverings with limited materials. The study of geometry facilitates the means of sketching and measuring all forms and solid bodies, by teaching the different properties of all sorts of curves; that of mechanics shows how to balance the governing and supporting powers. Whoever has neglected these studies will never find the right medium between solidity of construction and economy. Mechanics may be of great use to the modern architect, by affording him machines, which will supply the place of a number of hands, in the execution of his projects. Perspective and optics are equally necessary to him; they assist him not only in giving ideas of the effect and points of sight of the intended erection, but in finding means to light up his interiors advantageously, and to bring out or throw back certain portions of the building, according to their situation, or to the distance from which they will be viewed. An architect ought also to study physics, at least in some general respects: he should know, not only practically but theoretically, the component parts of his materials, and the different qualities of those he may have occasion to employ, according to the country he is in. He should have studied the physical and meteorological causes of the influence of the sun, air, and climate of the country in which he intends to build, in order that he may be able to determine on the most salubrious situation, and the most favourable aspects. It is this knowledge that Vitruvius recommends under the name of medicine.

Under the title of drawing, we do not understand simple delineation, but that study of the human form, and of nature in general, which is the foundation of painting and sculpture; drawing, we repeat, ought to constitute an essential part of the practical studies of an architect. Some authors have asserted, that no one could be a good architect, without having been a good painter or a good sculptor. If we glance towards antiquity, we shall still find, notwithstanding the number of examples that time and numerous revolutions have stolen from the fine arts, a great many authorities in favour of this community of studies, and proofs of the harmony which once reigned between these arts, and between those who professed them.

It was especially in modern Italy, and in the most happy age of the art, that most examples were seen of a union of skill and renown in different branches of the delineatory art produced in a single individual. We should make far too extensive a list, if we

included in it all the painters and sculptors whose celebrity has reached our days, and who combined in the highest degree, with their respective arts, the knowledge, taste, and practice of architecture. Such a list would comprise the ever famous names of Giotto, Orcagna, Mantegna, Michael Angelo, Raphael, Giulio Romano, Polydorus, Vasari, Tibaldi, Daniel de Volterra, John of Bologna, Domenichino, Cortona, Bernini, Algardi, &c. To this catalogue we might contrast one, of men more particularly celebrated for their architectural works, but whose talents extended themselves to other arts. We might quote in this enumeration, Brunelleschi, Alberti, Ammanati, Sansorino, San Gallo, Bramante, Vignola, &c. It is thus evident, that in Italy there scarcely exists any fine monument of architecture, which is not, thanks to those who were its authors, the result of the combined knowledge and practice of different arts. The reason of this union of talents, formerly so common, but now so rarely met with in one man, is, that, formerly, the common point of instruction in these different arts was the study of nature, manifesting to each, according to its style, and under its direct or indirect affinities, the physical or moral qualities of this great original. Every one read and appropriated to himself the laws and effects of unity and variety, and understood the harmony of form, outline, and proportion. Instructed by, and imbued with, these grand principles, every artist, by the practice of drawing, could apply them to the different arts, as to different dialects of the same language, and knew how to pass from one form to another without changing any thing in the groundwork of the skill which enabled him to design each. Thus it was often seen, that an artist, compelled by chance to the exercise of an art of which till then he had no experience, suddenly developed aptitude in it, which would now appear to be the result of the devotion of an entire life. The history of architecture furnishes a multitude of examples of this kind. Vasari, in his *Life of Baccio d'Agnola*, remarks, that this art, more peculiarly than any other, has been exercised by a great many men who had not made it a special study, and who were even ignorant of its technical terms. To which this writer, who was himself both a painter and architect, adds, "that no one could excel in architecture without sound judgment, a knowledge of drawing, or the habitual exercise of painting and sculpture. *Se non da coloro che hanno ottimo giudizio e buon disegno, o che in pittura o sculture abbiano grandemente operato.*" The cause of the facility," continues Vasari, "with which painters and sculptors learn architecture, is, that both from the affinity of statues with edifices, and the necessity of employing architectural compositions in pictures, they are forced to make themselves acquainted with this art, and to study its relative proportions."

Vasari, as may be observed, only accounts for this necessity by reasons of an inferior order. In fact, the real necessity for the painter and sculptor to be initiated in the elements of architecture, is very far from being the cause which makes them produce *chefs-d'œuvre* in this art. We must, in order to explain what has taken place in this respect, go back to analogies of a superior order, which apply to the principles of order and general harmony, as well as to the effects derived from them. The artist receives from these the most important lessons in those arts, which are the most direct and perceptible imitations of the beauties and perfections of nature. This is what we understand by the word architecture from this text of Vitruvius, "Non potest ædes ulla sine symmetria atque proportionem rationem habere compositionis, nisi uti ad hominis bene figurati membrorum habuerit exactam rationem."

Whatever may be the authority of examples and theories on this point, as well as of the results which we may deduce from them, we cannot in these times make a law for uniting the teaching and practice of these different arts, nor expect a reproduction of the ancient custom. If the nature of ideas connects these sciences, if their moral elements reconcile them, the habits of modern schools, and the customs of practice, have raised between them almost insurmountable barriers. If then we can no longer, with Vitruvius and Vasari, exact from the architect the actual practice of painting and sculpture; at least, we ought to expect from him that he should combine some theoretic notions of the nature of imitation in the two arts, with a digest of the art of figure-drawing, whether it be to enable him to introduce in the composition of his designs suitable ornaments, or to direct the taste and style of other artists intrusted with the execution of the decorations he may have projected.

But what we cannot too strongly recommend to him who aspires to become an architect is, the study of antique monuments and edifices. We may say of these works, that they are, for the student of architecture, what the sight and study of the human form are for the painter and sculptor. [This we consider as architectural bigotry, but we insert it because we think it right that our readers should know the opinion of such a man as Quatremère de Quincy.] The models of architecture do not consist, as in other arts, of a formal mannerism, which seizes upon the exterior senses, by means of bodies on which physical organs have a direct action; but it is from works in which genius, intelligence, and reason, combined, have expressed from the first all the perfections of organised beings, that the genius, intelligence, and reason of the moderns should seek for lessons and examples.

So the instinct, feeling, and consent of ages, as well as all

learned men in all civilised nations, have not ceased to attest and proclaim, that in no country upon earth, nor at any time, any other style of building than that called antique has been either the true imitator in its edifices of the beauty of the physical works of nature, or the faithful interpreter of the laws she follows in the production of creatures [!].

ART. III. *Thoughts on the Origin, Excellencies, and Defects of the Grecian and Gothic Styles of Architecture.* By the late Dr. JAMES ANDERSON.

[THE essays, of which the following is the first, we have always considered to be among the very best that have ever appeared on the subject of architecture, in the English language. They were published, in the year 1800, in a periodical work, entitled, *Recreations in Agriculture, Natural History, Arts, &c.*, conducted by Dr. Anderson, but which, notwithstanding its possessing merit of the very first class, never obtained extensive circulation. Dr. Anderson was a man of almost universal genius, an elegant and scientific writer, and a man of taste. We make no apology for republishing these essays; because we believe that even their existence is known to very few architects; and because even those who may have heard of them, and know in what work to find them, would be obliged to purchase six octavo volumes, for six essays, which, printed together, would not fill one of our Numbers.]

GRECIAN Architecture. — In the earliest periods of society, it is probable that the first hovels erected by man in every country, for protecting himself from the inclemencies of the weather, were formed of boughs of trees interlaced, and covered with leaves, or grass, or reeds, by way of thatch. As the inhabitants of the earth advanced in civilisation, and invented tools adapted for cutting down large trees, for shaping wood into various forms, and joining different pieces together, structures of greater durability and elegance began to be erected of timber. The circumstances which gave rise to the idea of what we have since called the *orders* of Grecian architecture, have been so often detailed, as not to require to be here dwelt upon. It will be enough for us, at present, barely to remark, that the stems of trees cut over at one uniform length, and placed in a perpendicular position at a regular distance from each other in a straight line, as posts to support a superincumbent roof, were evidently the prototype of *columns*: that beams laid along their tops, so as to connect them together, and keep them in their true position, formed the basis of what was afterwards called the *architrave*: that the end of cross-beams serving to connect the two sides of the structure together, and resting upon the architrave, afforded the first hint for the *triglyph* in the most distinguished of these orders: that the thatch cut in *talus*, projecting over the side walls, suggested the notion of the *cornice*; and that the end view of the triangular roof, with boards fastened by means of small girders, connected with the sloping wood of the roof, for the purpose of securing the thatch from being carried away by the wind (many very perfect models of which may be seen at this day in the country cottages of England), was the original of that kind of

ornament which hath since been called a *pediment*. All these things are such obvious truths, as to require merely to be stated, in order to be unequivocally assented to. As to the manner in which the lesser ornaments which constitute the characteristics of the five orders were introduced, I do not mean to take up time in detailing them, because I do not think them of sufficient importance to require a discussion in this place: besides, these have been so often repeated in elementary books of architecture, that no one who wishes to investigate such particulars can be at a loss to find them; so that I willingly here decline to enter upon this commonplace investigation.

For many ages after the Greeks had discovered the beauty of posts symmetrically arranged, supporting a roof on the outside of a wall or other building, and had felt the pleasure which an area thus protected from rain, and shaded from the sun, afforded in a warm climate, such *porticoes*, as these covered walls were then called, must have been accounted among the highest luxuries that the natives could enjoy; for there men could walk at all times in the open air, though screened alike from the inconvenience of wet and heat. Among a people, who were naturally inquisitive and loquacious, as the Greeks were; who had no means of obtaining instruction or information of any kind, but by oral communication with each other; whose laborious operations were all performed by slaves, and where they must, of course, have had much idle time upon their hands, it is no wonder if such places were held in the highest degree of estimation, and of course it must have happened that the ingenuity of their best artists was employed in arranging their columns with the utmost symmetry, in adjusting the proportions of the several parts, and in polishing and decorating all such structures in the most elegant way that their imagination could devise. That the Greeks, therefore, should become so fond of this kind of architectural decoration, as to deem it an essential feature of grandeur and elegance, and an indispensable adjunct to every public building, is what was naturally to be expected; and there can be no doubt but many thousands of structures, the memory of which has long since been totally obliterated, were thus ornamented, long before an idea was entertained of erecting any of those durable structures, the vestiges of which have been preserved even to our days.

As Greece advanced in civilisation and in wealth, their artists became acquainted with the means of preserving the remembrance of the heroes whom they respected, and the deities whom they worshipped, by cutting their figures in marble. To display these statues to the best advantage, it was necessary that they should be placed on pedestals, to elevate them to a proper height above the level of the ground. It was natural for the artists to wish that these pedestals should be formed of materials equally durable with the statues themselves: nor would it be a difficult matter for the statuary so to fashion those stones as to give them the stability required, and the form that seemed best to accord with the purpose intended. There is great probability, that it was in this way they first began to form an idea of what we now call *masonry*. How many ages it might be, after they had first discovered the beauty and convenience of colonnades, before the first hint of the art of masonry was suggested, it is impossible for us now to say; but we may naturally conjecture that a very long time must have elapsed, after the first discovery, before they could form the bold idea of erecting a large building, constructed entirely of that *everlasting* material, as they would naturally suppose marble would be. But when the mind of man has once conceived a great idea, it can scarcely be relinquished: it broods over that idea continually; and one difficulty being at length surmounted, affords encouragement to go on, in hopes that others may in like manner be overcome. In this way they would come by degrees to see that it was possible to rear the *walls* of a public structure of stone to the height required. For we well know that these walls in general consisted of very plain work, having few apertures in them that might tend to embarrass the operator; and even this step, however easy it may seem to us, who have been accustomed to see walls reared of stone every day since our earliest in-

fancy, must have appeared to be a stupendous exertion of human power to those who beheld it for the first time; as will appear obvious to any one who shall look endways at a thin wall raised to a great height before it be covered in with a roof, if the scaffolding has been removed. So very insecure, indeed, must such a wall have appeared to be, that I am satisfied it could only be by degrees that they would venture, from the experience they had had of the strength of low walls, to add by little and little to their height, and at different times, as occasion called for it, that they came at last to be satisfied of the practicability of rearing even such plain walls to the height to which they were carried in those temples.

But the greatest difficulty yet remained. A public building without a colonnade annexed to it, could not be tolerated in those days; and how to erect a colonnade of marble, in the state of their then knowledge of masonry, that should, in any respect, resemble those which they had been so long accustomed to idolise, must have been a very difficult problem to solve. They had been so long accustomed to admire the symmetry of their columns, and the conveniency that the colonnade afforded, that they would never once dream of any thing as a substitute for it. One device only for getting over this difficulty remained: it was, to preserve the form as much as possible, but to alter the proportions of their columns, so as to bring it within the compass of their power to execute it with the materials they had chosen. For this purpose, instead of the slender wooden posts that had been before in use, they found it necessary greatly to augment the diameter of the column, so as to give it the solidity of a pillar capable of supporting the weight that was necessarily to be laid upon it. And as it was impossible to get a solid stone that could run along the whole length of the colonnade, as the *wooden* architrave used to do, it was necessary to place these columns so near to each other as to admit of one block of stone to reach from one column to the other, so as to have one end to rest upon each column, and thus to bind them together, as the architrave used to do. Thus was the intercolumniation diminished to that inconvenient proximity to which, ever since that day, the followers of Grecian architecture have thought themselves obliged to adhere. A circumstance this which must have struck those who saw it for the first time as a prodigious defect; although, on account of the supposed impossibility of avoiding it, and the idea of grandeur that would be annexed to this mode of building, on account of the difficulty of constructing it, and the amazing expense it would cost, compared to that of former structures of the same sort, they would strive to reconcile themselves to it: and soon they would be able to do this, if the ideas of people in Greece were in any respect like those which prevail in the modern nations of Europe, among whom a new fashion, if it be only sufficiently expensive, will never fail to be deemed the quintessence of elegance, however absurd and inconvenient.

Be this as it may, there can be little doubt that it was from the circumstances here explained, that the proportions of the Grecian columns and their intercolumniations, which have been adhered to ever since, were first established; proportions which, though it may by some be deemed worse than sacrilege to speak of them as I now do, will for ever prevent this ornament from being conjoined, without incongruity, with the convenience that private buildings require; or, perhaps, with that of public buildings, without producing unnecessary clumsiness and comparative inconvenience and inelegance, if persons whose judgments are unprejudiced are to decide. But on this subject I shall not now enlarge.

After the people of Greece had once reconciled themselves to the idea of the superior grandeur of marble columns when compared with those of wood, colonnades of the latter kind would naturally fall into disuse, except in those meaner structures which were erected solely for the purposes of conveniency; in regard to which, cheapness being chiefly considered, every kind of unnecessary ornament would be entirely avoided. The superiority in point of elegance, of marble columns above those of wood, would then come to be indisputably

and universally recognised; so that no public building of considerable note could be erected without the necessary appendage of a marble colonnade, in front at least, if not on each side the building. And we can accordingly trace this form in almost every temple in ancient Greece, the memory of which has reached the present day.

But although the Greeks, in the most flourishing period of these petty states, were so far acquainted with the art of masonry, as to be able to rear temples and other public buildings of stone; yet it does not appear that ever it was customary among that people to erect private buildings of these costly materials. We have every reason to believe that the private habitations of individuals were, in general, formed of wood or other cheap materials; and that convenience, rather than elegance, was principally attended to among them. We know, also, that in Grecian temples it was *external* grandeur and elegance alone which was studied, and that *internal* decoration of every sort was comparatively disregarded. Indeed, the area contained within the walls of these temples was so small, as not to admit of any ornaments of a grand style; and they were in general buried in such deep obscurity, as not to allow ornaments of delicacy or elegance to be seen, had they been there attempted. Under these circumstances, the architecture of such a people must of necessity have been extremely imperfect, as it must have remained defective in many of those particulars which will ever be deemed indispensably necessary for the accommodation and convenience of a wealthy and luxurious people; those, especially, who inhabit high latitudes, and who, by being under the necessity of living much within doors, must find that internal convenience and elegance in private houses are, to them, of more indispensable necessity than those external accommodations which were so much, and so justly, admired among the Greeks.

From these considerations I am led to infer, that if the prosperity of Greece had continued for a sufficient length of time to have enabled them to discover the deficiencies of the art of architecture, which they had begun to cultivate only in *one* of its branches; or, if the private wealth of individuals had so much augmented as to introduce a taste for domestic pomp; or, if the nature of the climate and other circumstances had concurred to make public buildings of great extent necessary for the accommodation of the people, in which men could be protected from the inclemencies of the weather without being deprived of light; I cannot entertain a doubt that the lively and inventive genius of the Greeks would have supplied those deficiencies under which their system of architecture, as it has been transmitted to us, most evidently labours. But this not having been the case, we have now to lament, that an idolatrous veneration for that people, who, in many respects, are indeed justly celebrated, should have so far stupified the minds of all succeeding generations, as to have prevented them from ever thinking of supplying these defects: nay, more, to such a height has this infatuation been carried, that after those defects of Grecian architecture have, in one particular at least, been supplied in the most complete and happy manner, so as to display an unrivalled combination of elegancies and conveniencies, which it would have been deemed impossible ever to attain, if it had not been actually carried into execution, and which exhibits a stretch of human powers that is perhaps unequalled in the history of arts, this sublime invention has been contemned and vilified, even until the present hour, instead of calling forth those sentiments of reverential respect which the contemplation of superlative excellence ought ever to excite. But as the splendour of the sun is lost upon the blind, so are the operations of superior genius upon the minds of those who are bemired in ignorance or benumbed by prejudice.

It does not appear that the Greeks ever entertained a thought on any other department of architecture than that which respected the polishing, ornamenting, and adjusting their favourite colonnades; and concerning even that favourite object we are able to discover that they, like every other class of mankind, had a tendency to imitate what they had seen, and to be blinded by the prejudices

which they had imbibed in their infancy; and thus have established rules which a sound judgment and chastened taste (the basis of which must ever be common sense) never could have authorised. For example: nothing is more beautiful than the stem of a growing tree which has a gradual taper as it ascends from the root, because no other form, in an elastic body, could be so well suited for carrying the weight of the top it has to support, and for resisting those strains to which an object unsupported above must be subjected when agitated by the wind. Nature furnished them with this model; and, to save the trouble of unnecessary workmanship, they were not at the pains to reduce the bottom of their posts to the same thickness with the top, when they formed them into a colonnade, although there was not now the same reason for the taper form that formerly existed. Thus far, while the materials consisted of wood, there might be little to blame; because the columns were certainly not weakened by that means, and they undoubtedly could be afforded at less expense. But when the columns came, in process of time, to be made of stone, no such argument could be adduced for adhering to the taper form. In this case a column is to be considered in no other point of view than as a perpendicular prop, consisting of incompressible and unelastic materials, which, of course, is as strong as it can be, in as far as respects its form, when it is of an equal thickness in every part; so that the thickness at the bottom is a mere useless waste of materials. Yet, from being in the habit of viewing wooden columns of that form, their eye had become so far accustomed to it, as no doubt to make them deem it elegant, so that they formed their columns of stone after the same model. The power of habit operates equally upon the minds of those in our day who have been accustomed to contemplate with admiration the works of Grecian architecture, as in all respects perfect; and they would, I doubt not, consider it as a great inelegance, were a colonnade in any case to be erected in which the columns were equally thick throughout their whole length. But that this decision originates merely in the prejudice that I have just indicated, I think it will not be difficult to prove. Every person of judgment and taste will readily admit, that any kind of prop (the column alone excepted) that was reared of masonry for the purpose of supporting a weight, would be executed in a very bad taste indeed if it were made of a taper form. I conclude that this would be the case, from the invariable practice of all the best architects, even those who have formed their taste on the Grecian model, none of whom, in any other case, excepting the column alone (or its substitute, the pilaster), ever deviate from the perpendicular form in any sort of pillars. Let me ask any person who thinks himself qualified to judge in this case, what opinion he would have formed of the taste of Inigo Jones, if, when he erected the piazzas in Covent Garden, he had made the pillars to taper inwards at the top, instead of rising to their whole height in a perpendicular direction, as they now do? This case is so exactly in point, and the answer so obvious, that it is unnecessary for me to push the illustration farther.

The Grecian artists, however, have run into one other deviation from the principles of common sense, and therefore of good taste, in the form of their column, which can be traced to the same source of imitation as the former; and we, from the same cause, have been induced to follow them in it. The reader will easily perceive that I allude to the swell in the column, of which some artists have been so much enamoured, as to deem it an essential requisite of the most indispensable necessity. For the origin of this defect we need not long be at a loss. Every person acquainted with the force of timber must know that, if a wooden prop were so much overloaded as to be obliged to bend, the yielding would take place toward the middle sooner than at any other place; of course, it would not be rendered in the least weaker by being made smaller at either end than in the middle. On this principle, while wooden pillars were still in use, the practice of making the column swell a little more towards the middle might have come into general use, as a way of obtaining equal strength with a smaller quantity of materials; but as the top of the post

was naturally smaller than the base, that would be left in its natural state; while the bottom part only was somewhat diminished in size. This form of the wooden column being thus introduced, it might come to be deemed judicious, and thus be rendered fashionable, and of course be deemed elegant. In this state we may suppose things stood when the Grecian artists conceived the idea of making columns of stone; and, from mere habit, as we may naturally suppose, they adopted that form in preference to any other. After what has been just said, it will be unnecessary to demonstrate the inutility and inelegance of this farther deviation from the principles of true taste in the formation of this favourite object.

When men have, by imperceptible degrees, contracted an overweening fondness for any object of taste, it is surprising to see how far they may be carried into the regions of absurdity without being able to perceive it. Even in Greece itself, where we have been accustomed to believe that no deviation from elegance or propriety in the fine arts could be tolerated, we might find numerous illustrations of this maxim; it will not, therefore, be surprising if we meet with many more proofs of it in Rome, where they did not so much as pretend to think for themselves in regard to this particular. They thought they never could be wrong if they imitated any thing relating to the fine arts that had ever been practised in Greece; and, like all imitators, they went far beyond their patterns in every species of absurdity, though they were unable to equal them in the finer departments of the art. These rough warriors contracted at last such a feverish fondness for the Grecian column, that they seemed to think nothing could be excellent in architecture where that ornament was omitted; and that they could not in any case go wrong if their buildings were only sufficiently crowded with this favourite object. Impressed with these ideas, and forgetting the original use of the column, which alone could ever give it either utility or grandeur (viz., that of standing isolated from a building, for the purpose of supporting a roof calculated to afford shade and shelter from the inclemencies of the weather, while the air was still allowed to circulate freely), they busied themselves in sticking columns close upon the wall. At the first we may suppose they made only one row of these mock columns; but by and by, diminishing their size, they mounted them in rows, as if upon stilts, one above another, till at length they reached the very pinnacle of perfection, by exhibiting four at least of the five orders of architecture on one building (the Coliseum), stuck upon the wall one above the other, in numbers innumerable, round the whole of the pile, like different stages on a cake of gingerbread; with this striking difference between them, however, that it is very easy to bring the eye into such a position as to see every part of the gingerbread cake equally well; but in regard to the building this could not be done. The eye preserves, of necessity, the same elevation nearly when it examines each of the five orders; so that, if the first row of columns be at such a distance and elevation as to allow of all the members being distinctly seen and in due proportions, the last row must be so far off as to make all its members disappear, which is, perhaps, a fortunate circumstance; for, if they could have been seen, they would have seemed to be so distorted, and so disproportioned in magnitude to the great whole of which they formed a part, as to appear ridiculously puerile. After they had come to this length, the flattening the columns, which they then denominated *pilasters*, was a natural step; it was an improvement so far as this, that it did not so conspicuously break the surface of the wall. It would have been a farther improvement still, if they had diminished the projection from the wall to the greatest possible degree; and then there would have remained but a slight step to have introduced the greatest improvement that this particular perhaps admits of, I mean, that of omitting them entirely.

I am not unaware of the risk that I run of being despised by a certain set of men, for speaking with such contempt of a practice which has been sanctioned by the greatest architects of modern times; and were I in expectation of being employed as an artist by men of a certain description, or were I a can-

didate for a seat among the learned society of the *Dilettanti*, perhaps I might think it prudent, like many others, to chime in with the multitude, rather than run the risk of losing the favour of some one of great wealth or power, who dares not move an inch from the track that has been beaten before him. Disclaiming every pretension to the distinguished honour of ranking in either of these classes, I resume the native freedom of a man, which is, to think for himself in all cases, and to disclose his ideas without reserve wherever he thinks that they may have a tendency to enlarge the human mind, to augment the powers of man, and neither to disturb the peace nor injure the property of others. Bigotry, of every kind, I consider as the greatest enemy that is to be found in this globe to the progress of man in every useful pursuit; because, considering the endless diversity of forms it assumes, its influence is more universal than any other enemy whatever; for, perhaps, no one person who breathes is entirely free from its influence. It becomes the duty, therefore, of every lover of mankind to drag to light this blind perverter of truth wherever they can discover him lurking under any kind of disguise, and to expose him in all his native deformity. I do not forget that there was a time when that person who had but expressed a doubt of the infallibility of the pope would have been viewed with horror by many wise and good men; neither do I forget that honest Wickliff, during that dark period, though at the risk of all that was dear to him, ventured, in some cases, to utter the dictates of common sense, in opposition to the stream of prejudice around him. The impression he made at the time was seemingly small; but it became more powerful as the subject was more nearly investigated, till at last the spell was broken, and the infatuation was totally done away. Had he respected prejudices, and had others done so still, because great and worthy men had been drawn away by them, these prejudices might have still prevailed. While, therefore, we venerate the real attainments of eminent men in every department, let us not respect their errors. A time may come, nay, a time will come, when that blind veneration which hath for so many ages prevailed in favour of every thing that is in any way connected with Grecian architecture will be done away, and when we shall be able to view these things as they really are, and reason upon them as freely as upon most other subjects, without either favour or prejudice; for, *Magna est veritas, et prevalebit*. Then will men wonder how it was possible that things so obvious should not have been perceived by many who were undoubtedly possessed of talents which exalted them far above the level of those who will then be able so clearly to see, and justly to appreciate, their involuntary aberrations.

ART. IV. *A General Survey of the present State of Domestic Architecture in the different Countries on the Continent of Europe; chiefly from personal Recollection.* By the CONDUCTOR.

In this survey we shall take each of the Continental states separately; and we shall notice the dwellings of each in the order of cottages, farm-houses, country inns, villas, mansions, and the different descriptions of dwelling-houses in towns. We shall add a few words on the public buildings of each country, on its architectural literature, and on the prospect which such country affords for a British architect to settle in. We shall commence with Russia, as being the lowest in the scale of civilisation.

Cottages being in all countries comparatively rude shelters from the inclemencies of the weather, their construction will always be found to exhibit some striking feature directly bearing

on the climate, the soil, or the situation of the country to which they belong. Villas and mansions, on the contrary, being calculated for men in a more artificial state, are nearly the same in all countries.

In Russia and the other northern countries of Europe, where the winters are extremely cold, the materials and construction of the very rudest huts will be found better calculated to retain heat than those of even villas and mansions in temperate countries; because, in very cold countries, a very high degree of heat within the cottage, relatively to that of the open air, is as much a necessary of life as food or clothing. This is a proof that what are considered the necessities of life differ in different countries, not only according to the degree of civilisation, but according to the climate and other geographical circumstances.

Russian cottages are almost everywhere built of wood, generally of wild pine trees, rudely squared with the hatchet, and reduced on two sides to an equal thickness throughout. The dimensions of a single cottage are commonly 20 ft. long, 10 ft. broad, and 6 ft. or 7 ft. high. There is seldom any interior division, or any ceiling intervening between the floor and the roof: the latter is generally covered with shingles, and the former of earth or of deal boards.

In constructing a Russian cottage, the first thing is (the situation being fixed on), to form a foundation for the four sides, by low walls, say from 1 ft. to 2 ft. in height, of such stones as can be procured. In many situations, where stones are scarce, this description of foundation is dispensed with; and, instead of it, a platform of earth, 2 ft. or 3 ft. broader and longer than the area of the cottage, is raised to the height of a foot or upwards. On this raised platform, joists, or sleepers, are laid down; and on these are placed the logs, which form the commencement of the walls. Each squared tree or log is made to intersect the others with which it is joined, at the angles of the building, by notching both logs half through, within a foot of their ends. The interstices between the logs are filled up with moss (generally with *Sphágnum* or *Bryum* L.) outside, and with mud inside. Four more logs, also notched into each other, are then laid; and then four more, till the side walls are 6 ft. or 8 ft. high. The next operation is to build in one end of the space enclosed a stove, resembling the oven of an English country baker, of stones or bricks, cemented with mud, from which is carried up a chimney of the same materials, to the height of about 2 ft. above the ridge of the roof. In, and sometimes on, the chimney is a damper of stone. The roof is next put on in the usual manner, and covered first with boards, the interstices between which are filled with moss, and next with shingles. The floor is afterwards laid with boards or battens, 3 in. or

4 in. in thickness; and the interstices between the logs, in the inside of the walls, more completely filled in with moss, or plastered over with mud. The windows are seldom above a foot square in the clear, and more frequently without a pane of glass than with one. A small shutter, or piece of board, or mat, serves to keep out the weather; and light, for the purpose of carrying on the business of the cottage, is admitted by chinks in the door in winter, and by keeping it open in summer. These chinks also afford the only means of ventilation. In some cottages the dimensions are not so large as those here given; the floor is of earth, and the chimney formed for carrying off the smoke from the oven is of logs and mud.

Such is the skeleton of the ordinary description of Russian cottages, of which very correct views may be seen in the *Travels* of Clarke and others, and in our *Encyclopædia of Agriculture*, Part I.

The cottages in the neighbourhood of Petersburg and other large towns are frequently built of two stories, and present a comparatively ornamental appearance. These cottages are, like the others, entirely built of wood; and, in the same manner, the gables front the road, and are ornamented by a light gallery, about the height of the eaves, and by a pent-roof under it. The only window used is a small square hole, which is opened and shut like the gun-port of a ship. All these cottages are exactly alike: they are built in pairs, and are ranged on each side of the high road. In front, or on one side, of every cottage is seen a deep draw-well, the bucket belonging to which is lowered by a rope, at the end of a long cross-beam, having a balancing weight at the opposite end: this beam acts as a lever, supported by an upright post. Such wells are common in the market gardens about London and Paris, and they are to be found in Greece, in Egypt, in India, and, in short, in every country eastward as far as Pekin.

The lower floor of the cottage is generally converted into a storeroom, and in the upper apartment the inhabitants reside. The interior of these dwellings is dark, gloomy, and ill ventilated. Instead of chairs, long benches are fixed to the walls, which, in many houses, answer both as a seat and a bed. The stores occupy the greater part of the room.

The most ornamental cottages which we saw anywhere in Russia were in some villages in the neighbourhood of Moscow; and these were built, we were informed, at rather more than the ordinary expense, by the proprietor of the estate. They were two stories high, with a small window in the upper part of the gable indicating a third story. The gables, which, as is usual in Russia, fronted the road, were the principal parts of the structure on which ornament had been bestowed. First there was a pent-

house or lean-to roof, serving at once as a porch and as a shed, supported by wooden posts with projecting brackets. Over this there was a balcony or gallery, in the manner of those in the wooden cottages in Switzerland; and into this gallery opened a glazed window. Over it there was a second gallery, looking into which was the small window before mentioned, and which was not above a foot square. There were carved barge-boards, and, at their junction at the ridge of the roof, pendants with pinnacles; while, suspended from the pendants, by slender strips of wood or iron, scarcely visible at a short distance, were figures of the sun, moon, and stars. The pinnacle of each pendant terminated invariably in a double-headed eagle. In some of these cottages there were suspended between the upper and under balcony, figures of dogs, and sometimes of horses, and of men with hatchets or with fowling pieces. The whole of these ornaments, when we saw them, had the appearance of having been newly cut out of fir deal; and we were informed that no other instrument was used for this purpose than the axe. Much laborious carving, or rather notching, had been bestowed on the barge-boards and on the top and bottom rails of the balconies. The latter appeared to project from the gable about three feet; and this was also the depth of the projection of the roof; so that the face of the barge-board and that of the balcony were in one plane. The sides of the cottage were ornamented by a carved architrave round the windows; and in some cases there was a kind of carved railing at about 6 ft. distance from the house in front, and on both sides; with a door or wicket opposite the centre of the gable, which formed an exceedingly good finish to the whole. The roofs were steep, and covered with shingles. The great sources of ornament, it will be observed, in these cottages were, the barge-boards, the balconies, and the pendants and pinnacles. The interior consisted of two rooms with a fireplace or oven between them. The stair to the floor above was a wooden stepladder. The outer room was used as a living-room, and the inner room was a kind of storeroom. This was probably also the principal use of the loft or floor over both. The sleeping-places were benches along the sides of both the lower rooms; and, during winter, the women and children, the latter being swaddled, and the former thickly clothed with sheepskins, sleep over the oven. As we travelled from Petersburg to Moscow alone, and the greater part of the way from Moscow to the Austrian frontier at Brody also alone, we took opportunities of examining the interior of the post-houses and cottages, which, we were informed, were very seldom embraced by British travellers. The merits of the Russian cottages consist in every part of the structure being formed of non-conducting materials; of these

materials being put together in such a manner as very effectually to exclude the external air, and, of course, to prevent the escape of heat; and of the oven or fireplace consisting of a large mass of non-conducting materials, and being entirely within the house; so that, when the fuel is once consumed, and the damper put on, little or none of the heat which has been generated is lost; and, the heated material being a non-conductor, the heat is given out slowly to the atmosphere of the room. In these three particulars the cottages of Russia are worthy of imitation in new countries having severe winters, like some parts of North America, &c., which abound in timber, and where labour is dear.

The bad points of the Russian cottages are, their want of light and of ventilation. A stranger, on entering one of these cottages, is almost suffocated with the horrible effluvia with which it is filled, and the effect on his lungs is such, as almost to deprive him of the power of speech, and of that of standing upright. There is no mode of remedying this evil, without losing a portion of heat; and, of course, incurring an additional expense in fuel, which would not be allowed; as, though the Russian lord is compelled to afford his serfs a greater quantity of fuel than that used by the most cultivated peasantry in Europe, he does it merely because a certain degree of heat is absolutely necessary to keep them alive; and he would not easily be induced to give more than was absolutely necessary for this purpose. In this way a small saving in fuel is made, at the expense of the contamination of the air of the cottage; though it is but justice to both the lords and their peasants to state, that neither the one nor the other of them is at all aware of the advantages of pure air to healthy and cheerful existence.

The first improvement to be made in the Russian cottages is, to increase their means of ventilation; and the next, to procure the admission of more light, by larger windows, and by glazing them. To ventilate effectually, at the least expense of heat, it would be necessary to have an underground tunnel conducted, in dry soil, from a point twenty or thirty yards distant from the cottage, to any other point beneath its floor. This tunnel ought to be at such a depth as to be out of the reach of frost (a matter of less difficulty than at first sight may be imagined, in a country where the ground is covered, during the whole winter, with a thick coating of snow); because the object of the tunnel is to raise the external air, which is intended to enter the cottage by it, to the temperature of the unfrozen earth (which is generally at that depth about 40°) before it enters the cottage. Where the tunnel cannot be sunk to a sufficient depth, on account of the moisture of the subsoil, it may be formed nearer the surface, and covered with a very large bank of earth; which bank of earth might serve as a boundary to the cottage garden. Having pro-

vided the means of admitting fresh air of a moderate temperature to the surface of the ground floor of the cottage, the next thing is, to regulate the escape of the contaminated air from its roof. This might be done by a valve connected with a tube in the upper part of the side walls; the tube ought to be several feet in length, with its exterior end bent downwards, to prevent the entrance through it of rain or snow. A more effectual mode would be to carry the tube parallel to the chimney, the heat of which, communicated to the tube, would create a circulation. Enlarging the size of the windows would admit abundance of light, and double sashes might be used at the distance of 6 inches the one from the other, to lessen the escape of heat through the glass.

The *Farmhouses* of Russia cannot be compared with those of any other European country except Poland. There is, indeed, strictly speaking, scarcely such a thing as a farmhouse, because there are no free farmers. Many of the serfs occupy a certain portion of land, which they cultivate by manual labour; and with the assistance of the horses and implements of their lords, lent to them at particular seasons. The farmhouse of the peasant, therefore, hardly differs from the cottage; unless, indeed, he possesses horses or cattle of his own, in which case his cottage is increased in length, and divided in the middle, and his live stock occupy one end, while he occupies the other.

The farmhouses of landed proprietors are extensive assemblages of wooden buildings of one story high, the principal feature of which is a long barn or barns, with low side walls, and a very high roof; the other buildings are for horses, cattle, sheep, or pigs; they are low and narrow, with doors, but without windows or other openings. These buildings are sometimes disposed round a square or parallelogram court, but more frequently they are set down at random, and, whether they are placed regularly or irregularly, they are invariably detached from each other, in order to prevent the spreading of fire, should it take place. The situation of a Russian farmery is generally within a hundred yards of the dwelling-house to which it belongs. There is so little profit to be derived by the British architect from any circumstance connected with Russian farmeries, that we do not think it necessary to occupy farther space with the subject. In a few situations in the neighbourhood of Petersburg and Moscow, Swiss dairies and German and British farmeries have been established, and bailiffs from the respective countries engaged to manage them. We have given a view of one of the latter, erected in the neighbourhood of Moscow, in the historical part of our *Encyclopædia of Agriculture*.

The *Country Inns*, or post-houses, of Russia are merely cottages on a somewhat larger scale. They contain no lodging-

rooms, and their occupants supply no provisions or drink of any kind to travellers. The sole purpose of these country or roadside inns, except in Courland and Lithuania, is for supplying the traveller with horses. In addition to these, all that can be obtained is hot water, and the accommodation of a seat or a bench in the common room, till the water boils, and the horses are got ready. There are no beds of any kind in these post-houses; the postmaster and his family sleeping on benches near the stove in the winter season, or on the boarded part of the floor, or out of doors on the dunghill in the summer. The inhabitants of Courland and Lithuania are a degree higher in the scale of civilisation than those of Russia Proper. They sleep for the most part in beds, or at least on bedsteads, with which their cottages, and usually their country inns, are provided. These beds are of the very rudest description, being generally narrow spaces, partitioned off the sides of the apartment by boards, and filled up with straw; or they are shallow boxes, into which straw is put, and the occupant's clothes, or bedding, if he has any, is put over the straw for him to lie on. A number of inns have been built in Lithuania by the Russian government, and these have, generally, not only one or two rooms for the accommodation of strangers, but a privy, the latter being seldom, if ever, met with in the country inns of Russia Proper.

The Villas, or Country Houses, of the Russian landed proprietors are of two kinds; first, the ancient houses of the proprietors, which are merely log cottages on a large scale; sometimes, as we were informed by an English gentleman residing at Kiow, consisting only of two large apartments, one for cooking and the use of the servants, and the other for the eating and sleeping of the master and his family; and, secondly, the modern villas, which, even on the smallest scale, have three or four apartments, and which generally have the kitchen in a detached building on account of the risk from fire. The smaller villas are mostly of only one story high, built of logs, like the cottages, but differing from the latter in having the logs covered, on the outside, with boards painted white, or coated over with plaster. The roof is of a low pitch; if possible it is covered with sheet iron, and it is invariably painted with the national colour, green. The interior of the rooms is plastered, and sometimes painted or stencilled. The mode of heating is by stoves of earthenware, the construction of which is too well known to require description. (See *Encyc. of Cott. Arch.*, p. 1029.) The living-floor is generally raised 3 ft. or 4 ft. from the ground, and ascended by steps outside. A few yards from the dwelling-house are seen the kitchen, the well with its lever, and the stack of wood; and, at a short distance, the farmyard, and, in

some few cases, a boarded fence enclosing the garden: the appearance of the whole gives the idea of poverty and neglect. The only circumstance worthy of imitation in these villas is the large size of the apartments; which, we suppose, has been found necessary in consequence of the use of double windows during winter, and the consequent total want of ventilation otherwise than by the opening and shutting of the doors, and the lighting of fires in the stoves once or twice in the course of the twenty-four hours. It is very generally supposed, by persons who have never been out of England, that fires are kept burning in the Russian and German stoves all the day, as they are in ours. This is not the case: a bright fire of wood is made in the morning, and, when it is consumed to embers, the damper is closed, and this supplies heat for the day. In cold weather, another fire is made in the evening, which supplies heat for the night. It is only in extremely cold weather that a fire is made in a stove three times in the four and twenty hours, even in Petersburg. We have already mentioned that the windows have double sashes; one of these is taken out at the commencement of summer: when it is replaced, at the beginning of winter, a handful of salt is laid on the window-sill, between the two sashes, to imbibe the moisture contained in the enclosed air, which would otherwise dim the glass of the inner sash, and freeze on that of the outer one.

The larger Villas, or Mansions, of Russia differ little from those of Italy as to general plan and external appearance; but the roofs, being usually covered with iron, are flatter.

Some of these villas, with the church or chapel which generally forms a part of them in the neighbourhood of Moscow, exhibit a picturesque assemblage of domes, cupolas, turrets, spires, and chimney tops, which strike a traveller with astonishment. The domes are sometimes covered with copper gilt; or with block tin plates, unpainted, which give them the appearance of being covered with silver. In general they are painted green, but there are instances of the black colour being adopted; and it is said that the Empress Catherine, on seeing this colour on the roof of a country palace, built for her at Astankina, near Moscow, and the shape of the roof, which was that of the lid of a sarcophagus, considered it ominous, and would not reside in it. Views of Astankina, and of other Russian palaces, villas, and mansions, will be found in the historical part of our *Encyclopædia of Gardening*, edit. of 1835.

The architects of these villas are invariably either foreigners, or Russians who have studied in Italy. Whoever has seen the ground plan of an Italian villa may form a very correct idea of the arrangement of all the modern villas, not only in Russia, but on the Continent generally. The plan is formed, in the abstract,

by a series of lines intersecting each other at right angles, and producing a number of square or parallelogram rooms differing only in size. They all open into one another, and into a common passage; so that the tour of all the rooms on each floor, may either be made by going through the rooms one after another without coming into the passage, or by going along the passage, and opening the door of each room. There is a poverty of effect, which is produced by the sameness of form, the want of interior decoration, and the meagre scanty furnishing of such apartments, which presents no idea of comfort, and prevents an Englishman from ever feeling himself at home in such a house. As a very complete example of the Italian villa on a large scale and in its genuine simplicity, we may refer to Salucci's palace of Rosenstein, in our *Encyclopædia of Architecture*; and for the Italian villa, with all the enrichments and improvements which fit it for the residence of a wealthy and refined Englishman, we refer to the splendid design of Mallet and Lamb in the same work, p. 947.

In the mansions of the higher class in Russia, as in Italy, considerable attention is paid to effect, both external and internal. Indeed, as far as design is concerned, several of the mansions at Petersburg, and a number of those at Moscow, are equal to any in Europe. The execution, however, of these mansions is almost always bad; and, indeed, there are very few of them that are ever entirely finished, the proprietor generally exhausting his funds, getting tired, turning his attention to some other subject, or dying, before the work is completed. Hence we frequently find a mansion commenced in brick, and finished with cornices, entablatures, and parapets, and even with columns and architraves to the windows, in wood. The portico is sometimes wanting; and we have seen it, in the case of a mansion in Moscow, partly of brick and partly of wood covered with plaster. In a climate subject to extreme heat in summer and extreme cold in winter, it may easily be conceived that this woodwork, which has generally been put up in a green state, soon separates from the brick or plaster to which it is attached; and this gives the building the appearance of falling to pieces. This is, in fact, the case; indeed, there are no ancient buildings in Russia, from Petersburg to Brody or Odessa, with the exception of the Kremlin in Moscow, and one or two churches in Smolensko and Kiow. The whole country, and all its towns, villages, and mansions, have an appearance of newness seen nowhere else in Europe. What adds greatly to this expression, is the total absence of hills, mountains, and rocks; at least in all the interior of the part of the country generally travelled over by Englishmen. A country without venerable architectural ruins conveys the

idea of one where human society is in a state of infancy. The sight of ruins, on the other hand, carries us back to past ages; and seems to show us that previous generations have existed on the land; that men have lived and made progress, and have given way in order to make room for others to make farther progress. In short, they show the age, the growth, and the power of mankind. A country of ruins is a country full of ideas; one without them is a blank, except to the naturalist. As men come to think more accurately on the subject of architecture, ruins in the Gothic, and especially in the cathedral Gothic, style, will be found to be expressive of a higher degree of human intellect in the builders, than Grecian or Roman ruins.

The Villages and Towns of Russia present few points of interest to the British architect. Being of modern formation, all the streets are wide, and at right angles; and all the houses in the Russian empire are numbered over the door and registered by the police. All the houses in villages are detached, on account of the constant danger from fire; and both villages and private houses are furnished with ladders and abundance of wooden buckets, to be ready in case a fire should break out. The first process, in this case, is always to remove the shingles from the roof over the spot where the fire has commenced, in order to give a vent to the flames, to prevent them from spreading, and to allow free access to the water thrown upon them. Very little attention is paid to either underground or surface draining, or sewerage, in Russian towns, with the exception of Petersburg and Moscow, where, however, the drains are exceedingly imperfect, partly owing to the nature of the climate.

The houses of the wealthy in Russian towns resemble those of the same class in France and Germany. Exteriorly they are in general plain; and interiorly they consist, like the country houses, of a repetition of squares and parallelograms, with few curved lines, with few sources of variety or effect, and with hardly any thing left for the imagination to work upon. The redeeming points are, that all the apartments are comparatively lofty and large; and they are well lighted, though badly ventilated. There are exceptions, and some of the most splendid elevations in Europe are to be found in the streets of Petersburg and Moscow. Views of some of these will be found in Clarke's *Travels*; and views of several of the country houses in the historical part of our *Encyclopædia of Gardening*, edit. 1835. Fig. 25. is engraved from a sketch which we took of one of the principal street-houses of Moscow, in April, 1814. The engraving is too small to show the beauties of the architecture; but architects will be enabled from it to form an idea of the splendour of the mansions of some of the nobility in that city. The materials of this mansion are bricks covered with stucco, and the roof is covered with



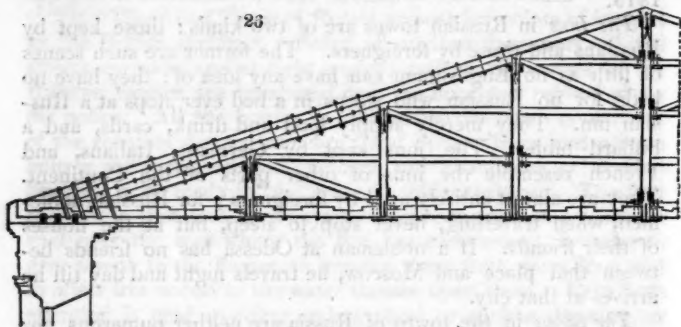
sheet iron, and painted green. This was one of the few mansions in Moscow which escaped the ravages of the great fire in 1813.

The Inns in Russian towns are of two kinds: those kept by Russians and those by foreigners. The former are such scenes of filth as no Englishman can have any idea of: they have no beds, for no Russian who sleeps in a bed ever stops at a Russian inn. They merely supply food and drink, cards, and a billiard table. The inns kept by Germans, Italians, and French resemble the inns of other parts of the Continent. They are almost entirely used by foreigners; for Russian noblemen, when travelling, never stop to sleep, but at the houses of their friends. If a nobleman at Odessa has no friends between that place and Moscow, he travels night and day till he arrives at that city.

The Shops in the towns of Russia are neither numerous nor showy; because the common places for making purchases are the bazaars and markets. The bazaars, both in Petersburg and Moscow, are grand and impressive buildings. The plan is commonly quadrangular; some of them being as much as 300 ft. on a side; and they are surrounded by a spacious colonnade or arcade. The effect is simple and grand; and the broad paved walk within the arcade affords an agreeable source of exercise and recreation, both in winter, when the temperature, under any kind of roof, is somewhat milder than that of the open air, and in summer, when it is somewhat colder. Each shop usually consists of one room or front shop on a level with the paved walk, a back shop or warehouse on the same level, two cellars below, and two living-rooms above. The living-rooms have sometimes windows looking into the colonnade, but in general they are over it, and are concealed by its parapet.

All the Domestic Architecture of Russia belongs to the classic style; and, in general, to that modification of it employed in Italy. One or two of the churches in Petersburg and Moscow exhibit some mongrel attempts at Gothic, or at Turkish or Saracenic architecture; but these are buildings erected previously to the middle of the 18th century. All the edifices which

have been built since the time of Catherine are in the modern classical style. In their construction they do not display any particular mathematical or mechanical skill; nor, indeed, is this required in a style of architecture in which the arch is but little employed. In public buildings, such as the bridges, churches, riding-houses, and exercising-house (the two last being most important buildings in such a climate as Russia), considerable skill has been shown in the construction of roofs. The roof of the *Grande Salle d'Exercice*, at Moscow, which we have described in our *Encyclopædia of Architecture*, p. 970. (and of which *fig. 26.* shows one half of one of the trusses), is ge-



nerally considered to be that of the largest span in Europe, the house being 150 French feet wide. In the spires, towers, and domes of churches, no great skill is shown; on the contrary, the columns and supporting walls are generally disfigured by wrought-iron tie rods in every direction. If the Russians were to attempt to construct churches or other buildings in the Gothic style, they would utterly fail; unless they adopted a very superior mode of execution, as well as of construction, to what they have at present, or to what the classical style requires. The Gothic style, however, is not adapted to a rude and unscientific people; nor even that composite modification of the classic style, in which columns support semicircular arches, as in the beautiful elevations of the Hungerford market, &c. The most suitable style for Russia, in its present state, is that which has been adopted, the plain post and impost.

It is not to be expected that Russia should have produced any *Architectural Writers*. Some of the foreign architects who have been employed by the government, and have settled in the country, have published engravings of the edifices constructed from their designs. Cameron, a Scotch architect, who was extensively employed at the palace of Tzarsco-

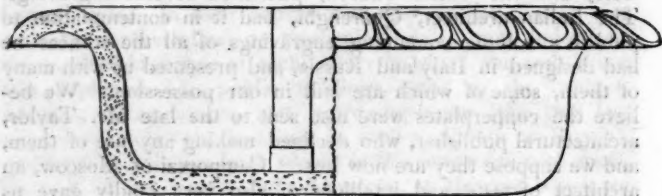
Celo, and the Casan Church, published several engravings. The Italian architect, Quarenghi, had it in contemplation to publish a volume containing engravings of all the edifices he had designed in Italy and Russia, and presented us with many of them, some of which are still in our possession. We believe the copperplates were also sent to the late Mr. Taylor, architectural publisher, who declined making any use of them, and we suppose they are now lost. Camporezi of Moscow, an architect of taste and intelligence, also very kindly gave us many of his designs (some of which he had had engraved), of works executed in Moscow and its neighbourhood. Several designs of bridges and public buildings were also, we believe, engraved and given away by the late architect and engineer, Bétancourt.

As a Country for a British Architect to settle in, much cannot be said in favour of Russia, but still we question whether there is any other country in Europe, at the present moment, where a British architect could settle with a greater prospect of success. It is almost essential for a stranger architect to get himself employed by the court, as it is this circumstance alone which forms a guide to the nobility, not only in Russia, but in every country on the Continent where a court exists. When an architect or artist of any description is once firmly fixed in Russia, his authority, in professional matters, is never doubted; and, if he is not liberally remunerated in money, he is, at least, treated with consideration by persons of rank, and rewarded by snuff-boxes, rings, and crosses of different orders. The worst point, with reference to settling in Russia in any capacity whatever, is, that it has a tendency to contaminate the moral principle, and to extinguish public spirit; since, as no interest can be taken in public politics, and intrigue enters more or less into every private transaction with the great, the whole attention of the individual is necessarily directed to self-advancement, without the same scruples, as to the means by which it might be procured, as would be felt by any well-educated man in England.

ART. V. *Notice of Architectural Ornaments manufactured in Artificial Stone by Mr. Austin.* By the CONDUCTOR.

WE greatly admire Mr. Austin's productions, and more especially since he has improved his manufacture, so as to leave no doubt in our mind as to its great durability. If we had a house to build for our own occupation, we would arch over the whole of the kitchen story; over these arches we would construct

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flues, in the Roman and Chinese manner, which we have recommended for the floors of cottages; and the flooring over these

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flues we would form of one compact smooth body, without a joint, similar to the floor of Mr. Austin's statutory yard in the New Road. We are convinced of this, that by no means whatever could a house be more effectually, safely, healthfully, and economically heated. We were convinced of this when we recommended the plan for heating cottages, in 1829, in the *Gard. Mag.*, and subsequently in our *Cott.*

Arch., and we have been strongly confirmed in our opinion by the remarks of Mr. Alfred Beaumont, in his pamphlet on

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Fireproof Buildings, reviewed in our last Number. Once insure the warmth of the floors of all the rooms on the ground, or, as it is commonly called, the parlour, floor of a house, and there is no fear of the upper rooms being kept at an insufficient temperature. Nay, as Mr. Beaumont has shown, warm only the entrance hall and the parlour floor passages in this manner, and you attain the object. It is one great recommendation to this plan, that, requiring arched ceilings over the

basement story, it renders a house in a great measure fire-proof; and another recommendation is, that the fires may be kept up by cinders only, and that they thus will require nothing but common attention from

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Pompeii. But we are deviating from our purpose, which was



merely to give a few specimens of articles manufactured by Mr. Austin. We shall do this at random, from articles exhibited in his statuary yard, to show the universality of its application.

Fig. 27. is a dissected view of a tazza vase, which may be used either as a basin for water, with or without a fountain in its centre, or for plants in pots; the latter to be placed in it, and covered with moss so as to conceal the pots; and renewed as the flowers decay.

Fig. 28. is an architect-





tural fountain, which may be surmounted by a jet of metal, forming any description of mechanical device. Such devices are shown in detail in the *Bon Jardinier* for 1835, just published.



Fig. 29. shows supports for consol or pier tables, or for vases for flowers or water, or for a bird-cage, or an aquarium for gold fishes.



Figs. 30, 31, and 32. are enriched tazza vases of different sizes, and variously ornamented.

Fig. 33. exhibits a tazza vase and pedestal.

Fig. 34. is an eagle.

Fig. 35. to Fig. 49. are Gothic ornaments.



ART. VI. Remarks on Bell Towers and Steeples. By Mr. WILLIAM J. SHORT, Surveyor.

It appears to me to be a great error, in the building of churches, to place the whole mass of the tower apparently on the slates; as is frequently done, particularly in churches and chapels in the Grecian style. Perhaps this practice may have arisen from a wish to retain, as much as possible, the simple form of the ancient temple; but I think it will be acknowledged that, however beautiful a tower may be, it must seem ridiculous, even to a common observer, to place such a high and weighty erection on such fragile materials as the roof of a church, without any prepared base; or, to the eye, any sufficient support.

Supposing it to be desirable to make our modern churches ancient temples, the present practice of placing a narrow and slender tower immediately over a broad and massive portico, say of the Doric order, has an effect quite opposite to that which it was intended it should produce; for it much detracts from the simple and noble appearance of the portico. The pediment, being a finish to the portico, requires no such addition; and, besides, it appears, to persons ignorant of its construction, too weak to be employed as a support for such an enormous weight as that of a tower, while it cannot be said that the connection adds anything to the tower itself.

Towers would certainly have a much more substantial appearance if the bases on which they were erected were in all cases en-

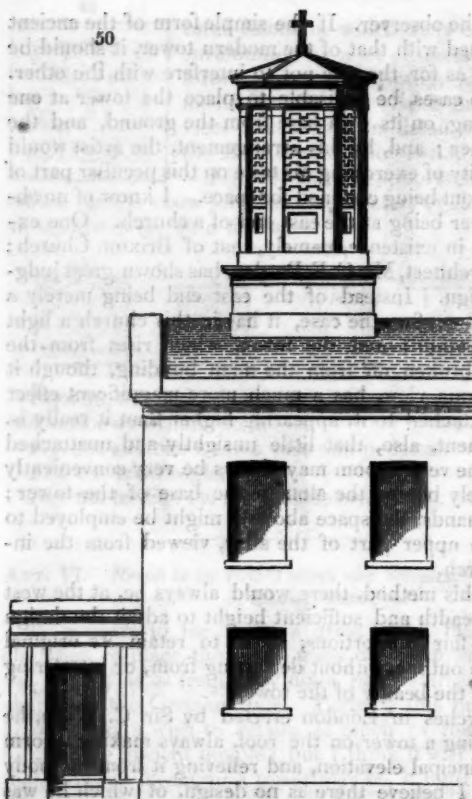
tirely exposed to the observer. If the simple form of the ancient temple be combined with that of the modern tower, it should be in such a manner as for the one not to interfere with the other. It might, in some cases, be advisable to place the tower at one end of the building, on its own base from the ground, and the portico at the other ; and, by this arrangement, the artist would have an opportunity of exercising his taste on this peculiar part of the building, without being confined for space. I know of no objection to the tower being at the east end of a church. One example, at least, is in existence, namely, that of Brixton Church ; and I think the architect, Mr. C. F. Porden, has shown great judgment in his design. Instead of the east end being merely a dead wall, as is too often the case, it has in this church a light architectural elevation ; and the tower, which rises from the ground, and is broken off from the main building, though it is embraced in one view, has a much more magnificent effect than if it were attached to it, appearing higher than it really is. By this arrangement, also, that little unsightly and unattached building called the vestry room may always be very conveniently placed immediately behind the altar in the base of the tower ; while, in skilful hands, the space above it might be employed to give effect to the upper part of the altar, viewed from the interior of the church.

By following this method, there would always be, at the west end, a good breadth and sufficient height to admit the design of a portico of fair proportions, so as to retain its original simple and noble outline, without detracting from, or interfering in any way with, the beauty of the tower.

In all the churches in London erected by Sir C. Wren, he has avoided placing a tower on the roof, always making it form a part of the principal elevation, and relieving it from the body of the church. I believe there is no design, of which he was the author, of a portico and tower together ; and, as he was in most cases confined for space, having only one elevation to the street, he, with his usual good judgment, omitted the portico altogether ; the tower being then considered indispensable in church architecture.

His pupil, Gibbs, in the church of St. Martin's in the Fields, has combined the portico and tower together at the west end ; but, in my opinion, the portico would have been more chaste and elegant without the addition of the tower springing from it, as the latter could have been placed at the east end. The building, however, shows the architect's great taste in applying the two columns in the flank of the portico, in such a manner as to form, when viewed from certain points, an apparent base to the tower.

I have often heard persons observe, since this church has been thrown open to the public view, that they could not see much



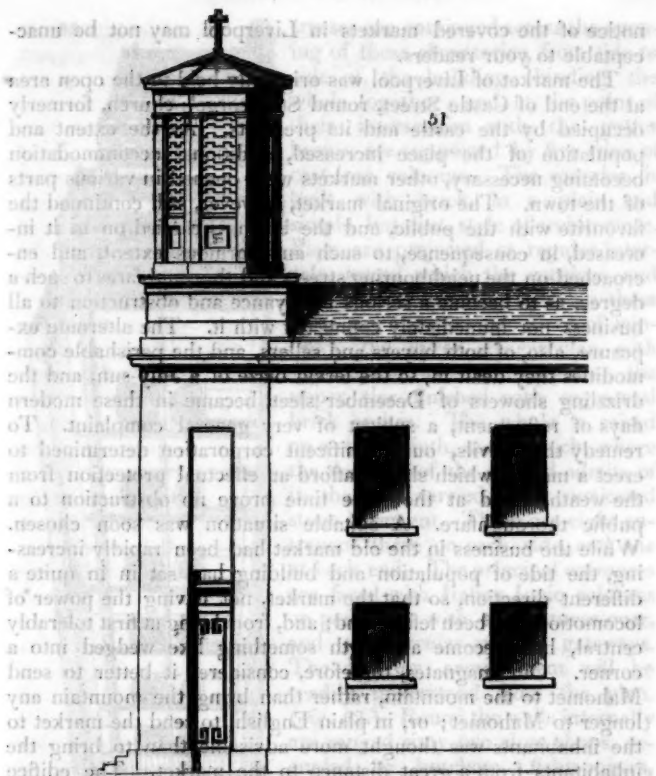
of being the principal, and, in fact, the only one worthy of his notice. On nearer inspection, this delusion, if I may so call it, completely vanishes; and acknowledgments are generally made, that the first impression, though perhaps correct as to the whole, is wrong as far as regards this fine feature of the building.

In chapels, where a small turret only is required, the effect when placed on the roof is still worse, as it bears no proportion whatever to other parts of the building.

Fig. 50. is a sketch of the portion of a chapel in the neighbourhood of London (and there are many similar chapels to be seen) with a tower placed on the roof, broken or detached from the rest of the building, in consequence of the slates being quite a different colour from the materials used in the construction of the turret.

Fig. 51. shows the same turret with a base from the ground;

to admire in its really elegant portico, when looking at it from a moderate distance. This feeling may arise from the injudicious situation of the tower, the observer's attention being drawn from the beautiful outline and just proportions of the portico, in consequence of the tower being placed so as to catch his eye at the same time. So many different forms and masses being seen all at once, the impression left on the observer's mind is that the portico is only a minor object, instead



the expense of which would not be much greater than the other; as extra-timber is required to support the turret on the roof, the value of which would nearly pay for the piers to support the turret from the ground; and, as the latter divides the elevation of the west end into three parts, by the projection of the turret, the piers, and the entrance, it bears a better proportion to the whole mass of the building.

Clapham, Oct. 1834.

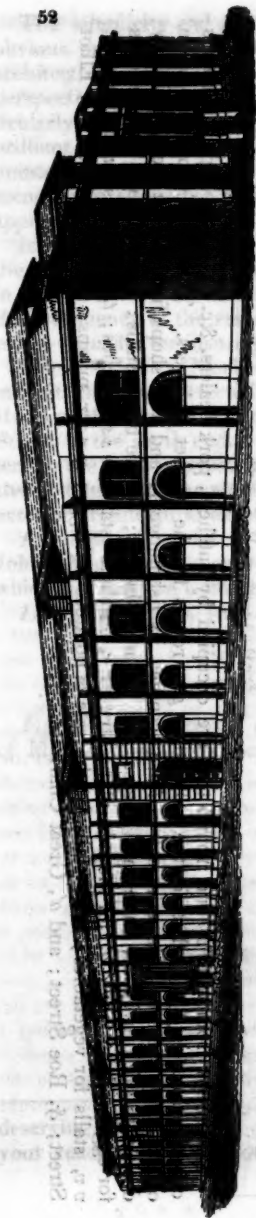
ART. VII. *A short Account of St. John's Market, Great Charlotte Street, Liverpool, with some Notices of the other Markets in that Town.* By J. A. P. Architect.

As a supplement to the description of Hungerford Market, in your Magazine for April (Vol. I. p. 53.), perhaps a short
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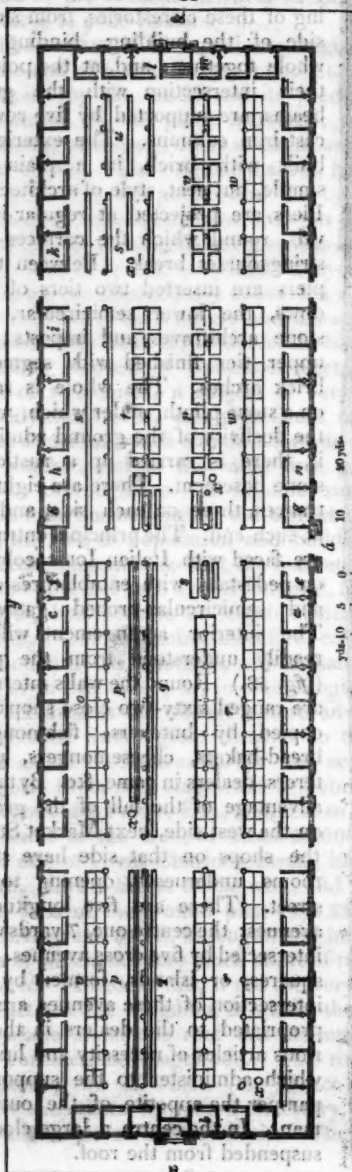
notice of the covered markets in Liverpool may not be unacceptable to your readers.

The market of Liverpool was originally held in the open area at the end of Castle Street, round St. George's church, formerly occupied by the castle and its precincts. As the extent and population of the place increased, additional accommodation becoming necessary, other markets were opened in various parts of the town. The original market, however, still continued the favourite with the public, and the business carried on in it increased, in consequence, to such an enormous extent, and encroached on the neighbouring streets and thoroughfares to such a degree, as to become a serious annoyance and obstruction to all business not immediately connected with it. The alternate exposure, also, of both buyers and sellers, and the perishable commodities they dealt in, to the fervid blaze of a July sun, and the drizzling showers of December sleet, became in these modern days of refinement, a subject of very general complaint. To remedy these evils, our munificent corporation determined to erect a market which should afford an effectual protection from the weather, and at the same time prove no obstruction to a public thoroughfare. A suitable situation was soon chosen. While the business in the old market had been rapidly increasing, the tide of population and building had set in in quite a different direction, so that the market, not having the power of locomotion, had been left behind; and, from being at first tolerably central, had become at length something like wedged into a corner. Our magnates, therefore, considered it better to send Mahomet to the mountain, rather than bring the mountain any longer to Mahomet; or, in plain English, to send the market to the inhabitants was thought more advisable than to bring the inhabitants from a great distance to the market. The edifice now called *St. John's Market* was accordingly commenced in August, 1820, and completed in February, 1822, from the designs of John Foster, Esq., architect to the corporation, at a cost, exclusive of the land, of about 35,000*l.* It is situated on the west side of Great Charlotte Street, having Elliot Street to the south, Market Street to the west, and Roe Street to the north. The form of the ground plan (*fig. 53.*) is an oblong square, or parallelogram, 549 ft. in length, and in breadth 135 ft., the whole area of which, not very much short of two statute acres, is entirely covered. I believe this, if not the very first, was one of the first markets in the kingdom, in which the principle of covering in the whole under one roof was attempted; at least on a scale of any considerable magnitude. The roof is constructed in five divisions; two of which (see *fig. 52.*) are raised considerably above the others, forming a clerestory, pierced with windows for the admission of light and air. The tie beams of the lower

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trusses are continued across the opening of these clerestories, from side to side of the building, binding the whole together; and, at the point of their intersection with the gutter beams, are supported by five rows of cast-iron columns. The exterior is built with brick, in a plain and simple, but neat, style of architecture. Piers are projected at regular intervals, round which the cornices and stringcourses break. Between these piers are inserted two tiers of windows, the lower semicircular, with stone architraves and imposts; the upper tier finished with segmental brick arches. The whole is raised on a stone plinth, under which, where the declivity of the ground admits of it, there is carried up a rusticated stone basement. There are eight entrances, three on each side, and one at each end. The principal entrances are faced with Italian Ionic columns on pedestals, with entablatures over, and semicircular-arched gateways. The interior arrangement will be readily understood from the plan. (*fig. 53.*) Round the walls internally are ranged sixty-two close shops, occupied by butchers, fishmongers, bread-bakers, cheesemongers, poulterers, dealers in game, &c. By taking advantage of the fall of the ground on the west side, next Market Street, the shops on that side have store-rooms underneath, opening to the street. There are five longitudinal avenues: the centre one, 7 yards wide, intersected by five cross avenues. The squares, or islands, formed by the intersection of these avenues are appropriated to the dealers in the various articles of necessity and luxury, which administer to the support or pamper the appetite of the outward man. In the centre a large clock is suspended from the roof.



The shops from *a* to *b*, and from *b* to *c*, are occupied by butchers, pork dealers, &c.; *e* is the superintendent's counting-house; *f*, the office for the collectors; *g*, *g*, rooms for the market weighers. The shops from *h* to *i* are occupied by fruiterers; those from *k* to *l* are occupied by fishmongers; and the shops from *m* to *n* are occupied by dealers in salt provisions, butter, and cheese, and by bread-bakers; *o* *o* are bacon stalls; *p* *p* are tables and benches for eggs and butter; *q* *q*, for the sale of poultry; *r* *r*, butchers' stalls; *s* *s*, benches; *t*, fruit stalls; *u*, fish stalls; *v* *v*, stalls for vegetables; *w* *w*, stalls for the sale of potatoes and eggs; *x* *x*, pumps; *y*, Market Street; *z*, Elliot Street; *z*, Roe Street; and *a'*, Great Charlotte Street.

The simplicity and convenience of the arrangement will be obvious on inspection, and do great credit to the distinguished architect by whom the building was designed. The beautiful perspective formed by the vistas of columns 183 yards long, particularly in the evening, when illuminated by successive rows of brilliant gas lamps; and the grandeur of effect produced by the uninterrupted extent of vision in every direction of the busy scene, form altogether a picture that must be seen to be fully appreciated.

It only remains to add, that the ventilation is complete. In the summer a delightful coolness pervades the atmosphere, while in the winter it is all that could be desired as a protection from the inclemency of the season. There is a plentiful supply of the prime requisite for insuring cleanliness, good water.

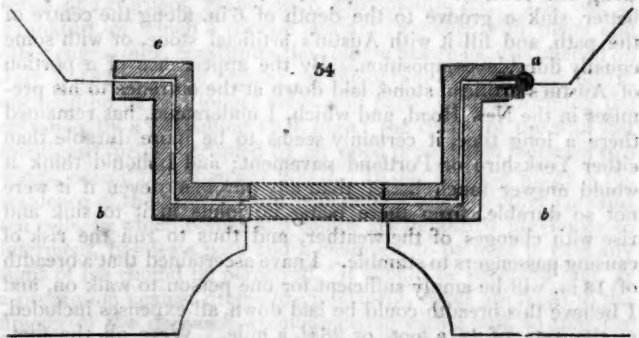
Since St. John's Market was completed, two other covered markets have been erected in Liverpool: St. Martin's, Scotland Road, at the north end of the town; and St. James's, St. James's Street, at the south end. These buildings are not equal in extent to the one described above; but in other respects are constructed in a similar manner, though with more pretensions to exterior architectural effect.

A building is about to be erected on land contiguous to St. John's Market, to be appropriated exclusively to the sale of fish, which will then be excluded entirely from the larger market.

Liverpool, August, 1834.

ART. VIII. *A Waterproof Casement.* By Mr. SAUL.

Fig. 54. is a waterproof casement, which I met with in the shop of Mr. Maitland, plumber and glazier, which I think is very



deserving of a place in your Magazine. I think, if each of your readers were to communicate such improvements as he

might meet with in different parts of the country, which have not been published, it would be a public benefit. You are aware that casements are much used in this country; it is, therefore, very desirable that all the different modes of forming them should be known. The frame of the casement is made of iron, and may be fixed in either wood or stone of any size. The figure will show that this plan is a good one; but, perhaps, some of your readers will be able to furnish you with drawings of a better: *a* is the hinge: *b b*, the stone jambs of the window; and *c* the falling or closing style, to which the fastening is attached.

Lancaster, Sulyard Street, July 28. 1834.

ART. IX. *A Suggestion for improving the Footpaths in the Neighbourhood of large Towns; and, ultimately, all over the Country.*
By A. P.

EVERY one who has had much experience in walking on the flagstone footpaths of a town, and the gravelled footpaths of its neighbourhood, will allow that he can walk three miles on flagstone, with less fatigue than he experiences in walking one mile on a gravelled footpath. I live at Kensington; I go in every morning as far as St. Paul's in an omnibus, and I walk out the whole way every evening. Now, I have no hesitation in stating, that I am more fatigued in walking the mile of gravelled footpath from Hyde Park Corner to Kensington, than I am with the three miles between Hyde Park Corner and the Bank. By what means, then, short of the expense of laying the footpaths with flagstone, instead of gravel, can these be made equally pleasant to walk on? My answer is, lay one line of flagstone along the centre of the footpath; or, what would probably be better, sink a groove to the depth of 6 in. along the centre of the path, and fill it with Austin's artificial stone, or with some equally durable composition. By the appearance of a portion of Austin's artificial stone, laid down at the entrance to his premises in the New Road, and which, I understand, has remained there a long time, it certainly seems to be more durable than either Yorkshire or Portland pavement; and I should think it would answer much better than any pavement, even if it were not so durable, from there being no joints in it to sink and rise with changes of the weather, and thus to run the risk of causing passengers to stumble. I have ascertained that a breadth of 18 in. will be amply sufficient for one person to walk on, and I believe this breadth could be laid down, all expenses included, at the rate of 1s. a foot, or 264*l.* a mile. Were all the footpaths at the sides of the public roads round London laid with ribands of pavement in this manner, to the distance of only five miles from town, the comfort to thousands that would be

produced would be immense; and greatly also would the expedition be increased of persons sent with messages, and workmen going to and returning from their places of work.

It may be alleged that one riband for a footpath would not be sufficient; and, certainly, for roads much crowded, two, at a distance of 3 ft. apart, would be better; but I shall be content to see one tried, fully persuaded that the public advantage resulting would soon occasion similar paths to be generally adopted.

REVIEWS.

ART. I. *Der Neue Friedhof vom Frankfurt am Main, &c.* Quer-folio. The New Cemetery at Frankfort on the Main. Oblong folio, with Seven Plates.

THE practice of inhuming the dead within churches and churchyards is one of those customs which, though countenanced by long-established example, deserve to be abolished. In large and densely inhabited cities it is positively injurious to the living; especially when bodies are interred within such buildings as our protestant places of worship, which are merely calculated for the assemblage of a congregation; and are not spacious and lofty edifices, only certain parts of which are appropriated to the actual service. Desirable, however, as it is, that proper cemeteries, apart from all habitations, should be provided, such a change can be brought about only by degrees. It is satisfactory to know that a beginning has been made in this country. One cemetery is already formed in the vicinity of the metropolis; and a project for a second, if not for a third, is in actual contemplation; besides which, there are extensive public cemeteries at Liverpool, Manchester, Portsmouth, &c. The one at Frankfort, of which a concise account (together with plans and other engravings) constitutes the volume before us, was opened on July 1. 1828. It is a regular parallelogram of 1120 ft. by 630 ft. enclosed on its two longer sides, and partly on that forming the entrance, by a wall about 10 ft. high; the centre of the wall last mentioned being occupied by an open propylæum between two wings, extending altogether 200 ft. In one of these wings is the residence of the overseer and assistants; while the other contains ten cells, in which bodies and coffins are deposited previously to interment, besides a bath and a chamber, to be used in case any signs of life should be perceived. It should be observed that, as a precaution against premature interment, cords are fixed to the fingers of the deceased, communicating with a bell, so that the least motion, in case of a person's revival, would be instantly made known to an attendant stationed in the apartment adjoining these cells. There is also a spacious waiting-hall on each

side the entrance, for the accommodation of those who accompany the funerals. The farther end of the cemetery, namely, that facing the one just described, is a continued structure, forming an arcade or open cloister of fifty arches, with as many family vaults below; and sculptured monuments to the deceased are to be placed against the wall of the cloister itself, which has the same number of recessed compartments, answering to the open arches. The ground within the enclosure is laid out as what is termed abroad an English garden; and a certain portion on each side of the entrance is allotted for large detached tombs and mausolea, like those in Père la Chaise.

Independently of the greater economy with which funerals are here conducted, one most praiseworthy and exemplary regulation is that which relates to the precautions observed to ascertain whether death has actually taken place, and to promote reanimation in case any appearance of life should be discovered. So careful are they on this subject, that it is strictly prohibited to inter any corpse until infallible signs of decomposition shall have manifested themselves. This is, indeed, of importance to the living; for of all the horrors that can present themselves to the imagination, nothing can equal the dreadful idea of reviving when nailed down in a coffin: the bare thought of its possibility is maddening. One most horrible instance of the kind was reported to have occurred not very many years ago, in the case of a Prussian nobleman, whose body was found, on the vault being shortly afterwards entered, lying on the floor with its skull fractured, the wretched man having, in his distracted phrensy, dashed out his brains against the wall.

MISCELLANEOUS INTELLIGENCE.

ART. I. Domestic Notices.

ENGLAND.

THE Houses of Parliament. — By the kindness of the architects we were enabled to inspect these houses, and, on the whole, we were gratified by their appearance. The House of Commons is a well-proportioned room, most commodiously fitted up; and, as far as style is concerned, it belongs to classic architecture. It is far superior, in point of room and light, to the former house; though in regard to taste it appears to us to be palpably deficient. All below the galleries we shall not find fault with; but above them it is lighted by semi-circular windows, like those of stables, the lines of which have no relation to any other lines in the interior; and the simulated beams which appear to support the roof are made to rest on naked walls, instead of being supported by brackets or pilasters, or by a frieze. When we look at the two ends of the room, and see there square pillars with Roman finishings, supporting a frieze, the simulated beams resting on the naked walls appear not at all consistent with unity of system. But, indeed, the very first glance at the house has the effect, on a person whose eye is accustomed to expect this quality, of convincing him that it was no desideratum on the part of the architect.

The House of Lords is inferior to the House of Commons in its general proportions and commodiousness; though it is much superior to it in unity of style and consistency of finishing. It is too narrow for its length. The whole is fitted up and finished in the Gothic manner; and, judging of it according to this style, the only fault that occurred to us on a hasty glance was, the want of pinnacles, or upper ornamental terminations, to the standards in the front balustrades of the galleries, to correspond with the under terminations or pendants. The latter are rich and appropriate, and the former seem mutilated or unfinished. This is a palpable omission, which certainly ought to be corrected. Perhaps it may be intended to add upper ornaments to the standards, in which case our criticism is premature; it cannot, however, be so with regard to the form of the windows, and the want of system in the ceiling beams of the House of Commons. The latter ought certainly to be altered immediately.

Both houses are heated by hot water; the plates being contained in pedestals and tables. A better mode, in our opinion, would have been, to have had the hot-water tubes or plates under the floor, with a grating over them. In heating all kinds of rooms, whether private or public, the great object is to communicate warmth to the floor; and, this being done, the warmth is sure to ascend to the upper part of the room.

Perhaps it may be considered premature or unreasonable to criticise buildings which are avowedly only temporary; but it must be considered that the test both of genius and ability, in an architect, consists in his acting with effect in the moment that he is called upon to do so in untried situations.

The execution of the work is good, and certainly the greatest credit is due to all parties concerned for having the whole in such an advanced state, and apparently so very complete. The *papier mâché* work of Mr. Bielefeld, and the graining and paneling of the painter (we have not heard his name), have certainly contributed materially to this result.

The Model of a Cooking Apparatus in which heat is elicited by the admission of water to some other substance, is now (Feb., 1835) exhibiting at the National Repository, in Leicester Square. It is a box, 1 ft. on the side, and 2 ft. high, composed of brass plates. The interior appears to consist of three drawers: two for containing the mixture or substance from which, by the addition of water, heat is generated, and one between these two, for containing the beefsteak or other article to be cooked. Over the upper drawer is a space for water to be boiled. We saw the steak cooked, and a glass of brandy and hot water mixed. The question of the utility of this contrivance will depend almost entirely on the cost of the material employed for generating the heat, relatively to the quantity of heat produced, and its duration. Of these we have no means of judging farther than that the inventor says, that the materials, after the first cost, may be kept in order for about a guinea a year. If so, they might probably be used advantageously for heating a room without a fireplace, or a green-house. A chemical friend suggests that the substance into which the water is poured is probably sulphuric acid, which produces an intense heat; and the water can be separated from the acid by boiling. Heat might also be produced sufficiently intense to cook food by pouring water on quicklime, as is now done at the Exhibition in the Adelaide Rooms, and the carbonic acid gas and water absorbed during the process discharged by reburning. If heat and light be, as is now generally supposed by philosophers, not material substances as Dr. Black was thought to have proved, but vibrations of the nature of those which produce sound, some more elegant plan of procuring heat without fire will doubtless be sooner or later invented or discovered.

Cornwall. — A Column is about to be erected at Truro, as a tribute to those enterprising travellers, Richard and John Lander. It is to be a fluted Doric column, of the hardest and finest Cornish blue grit granite; and the total elevation, statue included, will be 80 ft.; the statue of Richard Lander being 9 ft. and the die 20 ft. high. It will be erected at the top of Lemon Street, the finest street in Cornwall. Sir Charles Lemon has handsomely given the

site, and intends letting the surrounding ground for building upon as a crescent or square, as soon as the Barrack Department give it up. The first stone of the column will be laid on March 1., with masonic honours. I had the honour of having my design adopted at a public meeting held here on the 28th of October last. — *Philip Sambell, Jun. Truro, Jan. 12. 1835.*

Penance Guildhall and Markets. — The corporation of the above town have decided that the design of Mr. H. J. Whitling, 27. New Broad Street, London, is to be adopted for the above buildings. They have also awarded to Mr. Inman, of Eaton Square, the sum of 20 guineas for the second best design; and to Mr. Harrison, of Anwell Terrace, the sum of 10 guineas for the third best design. — *W. J. S. London, Jan. 24. 1835.*

Norfolk. — *Norwich, Nov. 1834.* This letter will include a variety of matters. I have been reading Turnbull's *Treatise on Cast-Iron Beams, &c.*, published by Weale, which appears to me simple, and easy to be reduced to practice. Cast-iron beams have generally yielded under a building on fire, though they may not have been fused: all experiments, therefore, with cold metal are inapplicable, particularly as iron will bend under heat. The irregularity in the quality of cast iron is a point to be attended to; the difference being as 3 to 5 between good and bad. In using iron for fireproof buildings, I would suggest that the beams should be tubular, so as to allow a current of cold air to pass through from the external face. I have an experiment in progress in one of my forges; but it has not been long enough in hand, to report. In constructing fireproof buildings, I should recommend as much of their support as possible to be derived from constructive brickwork, with as little ironwork as possible; and in cases of breastsummers I would advise bond of wrought iron, 3 in. by half an inch, to be inserted the whole length of the building, through the solids under the chamber windows: by this means houses might be kept together, even if one bay or arch failed. As they are now constructed they are like houses of cards: move one, move all. Shop fronts have no abutments; this tie would in some measure supply them.

I have been building a house on Morel-Vindé's plan, given in the *Encyc. of Arch.*, which is not much approved by our country people, but which is, of course, economical.

In a late journey to Ireland I could not forget your splendid cottages when compared with their miserable cabins. Your *Encyclopædia of Architecture* is, however, beginning to produce an effect; and I trust, in a few years, that the Irish cottagers will have as much reason as the English ones to bless your name.

I am at present laboriously engaged in repairing and remodelling my manufactory for the purpose of competition in this iron age, which, I trust, will account for my not writing oftener, or more at length. Having now got thus far, I will relate a tale. A country clergyman near —, being about to erect a house on the glebe, applied to the resident mason to do the job, saying, "He should have great pleasure in encouraging so industrious an individual." Accordingly the mason procured plans from an architect, which were generally approved; but the estimate, being thought too high, was ordered to be cut down. In the mean time the clergyman called upon another architect, whose estimate was also thought too high. About the same time a third schemer solicited permission to show the clergyman some of his plans, and the clergyman accordingly looked them over, making observations as he went along. Three weeks after, this third man came again, with his plans amended; but the clergyman had now consulted a fourth, a builder, with whom he contracted for a house. A fortnight after the third party left, he applied for the amount of his bill, 25*l.*, which quite astounded the reverend gentleman, and he refused to pay it, as he did not consider that he had employed the third party at all. The demand, however, was followed up by an arrest; and, by some trick in the law, the venue was laid in London, in consequence of which a verdict was obtained against the reverend defendant for 80*l.* Thus the clergyman has lost his character with his parishioners;

a house is built, much inferior to that proposed by the country mason; and the clergyman, after having paid nearly 100*l.* for architects, has at last had no architect at all.—*M. D.*

Somersetshire.—*The Bath Abbey.* If any doubts existed of the effect likely to be produced by the addition of pinnacles to the towers and buttresses of the Bath Abbey, it is conceived that they must now be entirely removed. Their effect is at variance with the general character of the building, and they have destroyed the peculiar features by which it was distinguished. The massive and compact form of the tower is broken up by the multitude of points presented to the sight. The change has produced a new object essentially differing from that which was the great ornament of the city. The ancient ecclesiastical buildings of this country are remarkable, even where the design of the original architect is confessedly not perfected; and scientific architects and antiquarians, so far from being desirous to complete their original design, have considered it a mere deference to good taste to allow them to remain in the condition in which accident may have left them. Their imperfect state forms historical evidence, of which their perfection under the hands of a modern architect can in no way compensate for the destruction; but if questionable additions are made to an ancient structure, destructive of associations connected with its age, all respect for it as an ancient work of art is at an end. It then becomes in design a mere modern fabric, and opinions dependent on its antiquity are at once broken down. Every device which those possessing the power adopt is sanctioned as an experiment; and the moral influence of opinion, being no longer supported by the desire to preserve the building as a specimen of early art, ceases to check the changes which careless or ignorant persons may propose or make.

The additions to the Bath Abbey have entirely new-modelled its form. They are not in accordance with the original design; but are, on the contrary, opposed to it. The battlements of the turrets were panelled with light and well-finished work: these have been destroyed, and the pinnacles now rising from the tower rest upon plain and badly finished turreted crownwork. The necessity of destroying the original work it is impossible to explain; and the crownwork now substituted is as novel as the pinnacles themselves. So far from the design of the first architect of the Abbey having been respected or perfected, it has, in this instance, been manifestly and openly neglected. The square-faced battlements, which rose flush with the eastern front of the Abbey, were parts of the early building; they accorded with the remarkable and almost unique square window which lay between the buttresses they completed. Their destruction, and their replacement by octagonal towers, surmounted with pinnacles, is one of the most uncalled-for mutilations of the original design that has been committed, and is inharmonious, in character and appearance, with those parts of the building with which they are connected.

On the west front there projected from the side of its towers the rudiments of buttresses; they formed a portion of the courses of the original stonework, and were admirable evidence of the design of the original building. These have been chipped away! If the corporation architect could not devise buttresses to join them, he and his employers were certainly not privileged to do what they never can repair: as mere evidence only of what had been intended, the rudiments of these buttresses ought never to have been touched. Half the respect for ancient works is independent of their beauty, and no pretended improvement ought to interfere with it. It was generally believed that the day had passed for meddling with the external character of the great ecclesiastical monuments of the country. The changes which indiscreet and ill-informed persons had been in the habit of making in our churches was, it was hoped, checked by the study of the numerous works which have of late years issued from the press, in order to illustrate the history of an art cultivated with singular success in England. That one of the most splendid towers in the West of England, and situate in a county distinguished beyond all others for the towers of its ecclesiastical buildings, should be the means to dissipate the

illusion, will be a constant cause of regret to those who have lived near it, and whose early opinions of it have been formed by the appearance it once presented.

The character of other cathedrals in England admits of pinnacles, and those various ornamental points which embellish them. In nearly every such case they form a part of the early building. If they are additions of a late period, they ought not to be regarded as models, for they cannot be considered of authority; but the extreme diversity of such structures presents the notion of their being any thing but any fixed models, either of ornament or general character. If the Bath Abbey differs from any other building, there cannot be any reason for now reducing it to the condition and form of any other building. It possesses its own peculiar character and its own peculiar features; to change or to disturb them, is to form a new building, and to substitute something for that which existed before, to the entire destruction of every association creating for it respect or admiration. (*Bath Guardian*, Nov. 1. 1834.)

ART. II. Retrospective Criticism.

PORTUGUESE Architects, &c. &c. (p. 87.). — I wish your correspondent, Mr. Evans, would communicate some particulars respecting some of the more interesting pieces of architecture to be met with in Lisbon and in other parts of Portugal. That there should be little now worthy of note, is by no means surprising, for the arts must be quite in a state of stagnation there; yet I can readily believe him when he says that there are "several things very interesting with reference to the buildings of past times." Even some slight notice of these could hardly fail to prove highly acceptable, there being scarcely a single work that gives any *artistical* account of more than one or two; among which happens to be the aqueduct of Alcantara, of which, indeed, descriptions are to be met with in many cyclopædias.

With the exception of the monastery at Batalha, we have hardly a single print of any Portuguese edifice: nothing by which to judge of their peculiarities of style; and let the taste displayed in them be what it may, several of them are no doubt highly curious, and so far interesting; although very far from being models for imitation.

While Italy has been travelled over by artists and draughtsmen again and again, and yet, it must be allowed, in nearly the same beaten track, the whole Spanish peninsula may be said to have been left untouched by them, save one or two particular points in Spain itself; and those have been principally looked at for examples of the Moorish style.

As a proof of the manner in which artists have confined themselves to one beaten track, it may be remarked, that those English artists, who have of late years visited Venice for the purpose of making views and sketches there, have nearly every one of them confined themselves to the Ducal Palace, the Piazzetta, and the Rialto. One would imagine there was a prohibition against their looking at, or, at least, against their delineating, any other subjects; although there are many quite as fine, and still more remarkable as specimens of style. What eyes must those have who can overlook such structures as the Palazzo Vendramin Calergi, the Scuola di San Marco, that of San Rocco, the Ca d'Oro, the Palazzo Pisani a San Polo, and numerous others?

That professed and professional architects should rather go to Italy, as the fountain-head of modern architecture, instead of visiting Spain and Portugal, for the sake of studying the Italian style at second hand, is not greatly to be wondered at; but that those with whom picturesque effect is as great a recommendation as more positive architectural merit, should so very seldom have directed their attention that quarter, may excite some astonishment.

Such being the case, it is not unlikely that, notwithstanding they are exceedingly scanty (no more, in fact, than brief notes), the following particu-

lars, which I happened to meet with some time ago, relative to one or two modern Portuguese architects, may prove acceptable to such readers as have a taste for collecting similar materials. Some of the persons whose names are here mentioned may still be living.

Jose de Costa e Silva studied at Rome, where he obtained several prizes, and was admitted as a member at the Academy of St. Luke. He may be considered as the first in rank among the modern architects of Portugal; and he was professor of architecture both at Lisbon and Rio Janeiro. The theatre of San Carlo was erected after his designs, as were likewise the new mint (*O Thezouro Novo*), the church and hospital at Runa, and the conduit called *O Chafariz de Santa Anna*. Besides these works, he was employed for several years on the royal palace at Ajuda, where he contrived to correct many of the defects in the original plan. Silva died at Rio Janeiro.

Germanio Antonio Xaviero de Magalhaens was a pupil of Silva's. He was professor at the architectural school at Lisbon, and made the design for the beautiful cathedral of Guimeraes, which, however, is not yet completed, the progress of the work having been stopped by the troubles into which Portugal was thrown by the invasion of the French. The Crucifal or cross-form church at Torres is another important work by him; and he likewise made designs for many private palaces of the nobility.

Manoel Gaetano Guiao, who had previously superintended the works of the New Mint, and those for the restoration of the patriarchal church at Lisbon, was appointed to succeed Silva in carrying on the building of the palace at Ajuda. The towers of the Convent de l'Estrella were likewise designed by him.

Joaquim Marques has erected or designed several public structures at Lisbon.

Feliz Joao de Silva has had many opportunities of displaying his talents; and among the principal edifices erected by him may be mentioned the beautiful theatre of San Joao, the Thezouro Real, and As Joias, at Rio Janeiro; also the emperor's palace at Santa Cruz.

This is but an exceedingly meagre list, one of little more than names, and altogether deficient in dates. Yet, as the proverb-loving Sancho remarks, "half a loaf is better than no bread;" not, however, that I consider this half a loaf, or anything like that quantity; it is but a mere crum, and, withal, as an Irishman would say, a crum that is all crust. Still it may serve as a nucleus; a kind of beginning for additions to works resembling *Melizio's Lives of the Architects*; which work itself, by the by, stands greatly in need of something in the shape of a supplement or continuation. It contains hardly any names beyond the middle of the last century; and, although those of Robert Adam, James Wyatt, and a few others, have been added to the English translation by Mrs. Edward Cressy, materials for a third volume might now be collected. Some of the more recent foreign biographical publications would supply many notices for such a purpose; and a number of memoirs, some of them much fuller than the generality of the articles in *Melizio*, might be obtained from the journals, in which they now lie scattered and buried among other matters.

Longhena, to whom Venice is indebted for so many structures; Temanza, the architect of La Maddelina, also at Venice, and author of *Le Vite degli Architetti Veneti*, 2 vols. 4to (from which Mrs. Cressy might have borrowed some valuable additions); Selva, a pupil of Temanza's, architect of the Teatro della Fenice, and one of Cicognara's coadjutors in his splendid work on the buildings of Venice; the Marquis Cagnola; Ledoux, Leroy, Legrand, De Wailly, Louis; Quarenghi; Knobelsdorff, Langhans, Gutel, Weinbrenner; Ventura Rodriguez; Porden, Gordon, Harrison; these are some of the names which deserve to be recorded; and if professional men now living take no interest in, and do not care at all to encourage, works of this particular class of biography, how can they expect that their own names will be preserved after their decease?

Among all ranks of artists in this country there is, it is to be feared, too

much of the mere trading spirit; an indifference to reputation, except so far as reputation tends to promote their interest. Neither do critics and tourists perform their parts with much greater zeal and application. In general, they are dreadfully *routinier*; or, if they seem qualified for their task, they merely touch the surface of their subject, and tantalise us by darting away from it. Forsyth himself is in a most provoking degree guilty of this offence: he has obtained a high name among later critics; and yet, when we come to examine and search into his book, we discover it to consist of little more than detached epigrammatic remarks, some of which, by the by, show more smartness than correct judgment. However, he rarely commits himself by assigning other than very one-sided reasons for the judgment he so decidedly pronounces. Almost all that he says of Palladio may be flatly contradicted by instances that make his observations appear like downright irony.

Hardly is it to be believed that any one who did not traverse Venice hoodwinked by Mrs. Starke and *guides* of her class, could pass by such an edifice as the Ca d'Oro, without bestowing more than ordinary attention on such a façade; and yet both Forsyth and Woods have done so. Mrs. Starke does not "guide" her readers either to this or any of a hundred other objects that at least ought to be pointed out, if they cannot be described. Her book does not even mention the Serra Palace, at Genoa, which Woods confesses that he somehow happened to miss! Yet, surely, he did not put himself under such a conductor as that lady.

At Cremona, again, Forsyth merely mentions the *Torrizzo*, and relates a common anecdote respecting it, cut out of the guide-books, although it is one of the most singular structures of the kind to be met with in all Italy. Woods escapes censure here, because he did not visit Cremona at all. Not venturing to trespass farther with remarks of this kind, I break them off, signing myself, as some may think, with very little right to such a name,—*Candidus*. London, Feb. 6. 1835.

J. R.'s *Remarks on Mr. Sopwith's Work on Isometrical Perspective*. (p. 45.)—I was much gratified by the favourable review of my work on *Isometrical Drawing* (Vol. I. p. 369.), and am also glad to perceive, that, with an impartiality which is alike creditable to you as an editor, and beneficial to your readers, your pages are open to critical opinions, however adverse to your own. The writer of the remarks (p. 45.) has, however, fallen into an error in stating that figs. 4, 5, 7, 8, 10, and 11. of plate xvii., and figs. 1. and 2. of plate xxiv. "are without any principle." All these figures are projected on a perfect geometrical principle; viz., that of parallel projection, which is the simplest and easiest of all modes of projection. Parallel projection exhibits one face of a cube geometrically, and this face may either be shown alone, as in common ground plans and elevations, or with one or two of the adjoining faces, as may best suit the object of the designer. This is well known to those who are conversant with projection; but, in order to explain it to the general reader, let it be supposed that the edges of a house were represented by a wire model, and this model were placed in the solar rays: the shadow of the wires falling on a plane perpendicular to the rays would exhibit the orthographical projection of the house; and the same shadow falling on a vertical plane parallel to the front of the house would exhibit the parallel projection of the house. In the latter case it is evident that the front of the house would be geometrically represented, and that more or less of one or two adjoining sides would be shown, according to the greater or less obliquity of the rays of light. Or, what is simpler still, let the wire model of a cube be held in the sunshine, so that its shadow may fall on a sheet of paper parallel to any two opposite surfaces of the cube; in which case eight of the boundary lines or edges of the cube would be parallel to the plane of projection. The writer of the retrospective criticism (p. 45.) is altogether mistaken when he states that "it is impossible for three faces of a cube to be shown by any projection whatever, if one face is represented geometrically, and the angles of that face are right angles; or, in other words, when the top and bottom hori-

zontal lines of that face are parallel to the plane of projection." In the cases I have shown, the top and bottom horizontal lines are parallel to the plane of projection; one face is represented geometrically; and yet, so far is it from being impossible, under these circumstances, to exhibit three sides of a cube "on principle," it is not only possible, but is effected by the most obvious and simple principle connected with the science of geometry; viz., the representation of the shadow of an object on a plane parallel to one of its sides.

If geometrical wire models were made of the several objects represented in plates xvii. and xxiv., the shadow of each model could be made to fall line for line on the respective engravings; the same wire model which would cast a lineal shadow exactly similar to fig. 3. plate xvii. by orthographic projection, would cast its shadow so as to cover each line of figs. 4. and 5. by *parallel projection*. Will J. R. now point out what he considers "want of principle?" A critic who volunteers to instruct the "geometrical student" should first acquaint himself with the rudiments of the science he treats of; and be careful in censuring, for "want of principle," drawings which will remain a testimony of his own want of knowledge.

The geometrical student will find that the angles assumed in what I ventured, for the sake of distinction, to call *verti-lateral* and *verti-horizontal* drawings, are extremely convenient modes of parallel projection, and can be drawn with great ease and correctness by the triangular rulers, which J. R. also discards as useless. Parallel projection has, indeed, been strangely neglected in this kingdom. In France it has been extensively used; and I have before me a French work on stonecutting, containing numerous and very admirable examples of this useful mode of drawing.

J. R. complains that the purchaser of my work has to pay for much information not essential to the "student uninterested in plane geometry." To such students alone my book does not profess to be addressed. In my titlepage and advertisements I endeavoured, briefly and concisely, to explain the nature and objects of the work. It is addressed to the geologist, the miner, the landscape-gardener, the builder, the machinist, the civil engineer, and to the proprietors and managers of mining districts.

It professes to give demonstrations to the mathematical student, and information how to render isometrical drawing available to the several departments of mining, engineering, &c.; and I have the authority of one of the most accomplished and practised critics of the day, and of many eminent and competent judges, for believing that its demonstrations are *not intricate*, and its contents *not foreign* to the objects I have in view.

Capheaton House and garden, and Chesterholme Villa, are drawn isometrically. As regards the aerial tints, and the addition of a few shrubs and branches in the foreground, it is a matter of taste; and I think both plates are improved in appearance, by the addition of pictorial effect, and rendered more agreeable to the eye of the general observer.

Mr. Nicholson's contributions are plain and masterly elucidations of the subject of isometrical projection; and though not adapted for "unlettered" persons, their merits will be appreciated by every mathematical reader; nor do I consider that either his demonstrations, or the general merits of the work, will be lessened in public estimation by the censure of one who has given a hasty, and, I would add, a somewhat uncandid, judgment, on a subject which it is quite clear he does not understand. — *Thos. Sopwith. Newcastle upon Tyne, Jan. 17. 1835.*

Hostie's Remarks on Competition Plans. (p. 12.) — I can, from experience, testify to the truths stated by Hostie, in his "Remarks on Competition Plans;" but I am forced to dissent from him in one instance, namely, with regard to the practice of putting private marks, and referring to a sealed letter. In his observations on this practice, it struck me that he overlooked the distinction between the constructive architect and the architectural draughtsman: the latter may often be a mere amateur, whose knowledge may happen to be merely that of a good painter, and who may be wholly unable to execute the design

he has made. Very many of these enter into competition, and, by the practice of private marks, cannot, of course, be distinguished by the judges. Now, as these judges may not always be of the description Hostis approves, the chances are that the choice may fall on the design of one who has no knowledge of constructive architecture, and, of course, is quite incompetent to execute the work. I have had experience enough to be satisfied that the scheme is not suited for universal adoption; and I consider that those who are to judge (but who may happen to know little of the subject) ought to have the security of well-known names as a guarantee for the able execution of the works. A choice could then be made without hesitation, nor need the skilful and deserving architect apprehend any thing but fair play. In Vol. I. p. 352. is an instance militating against the practice: if it takes an architect so many years of anxious labour before he gets fairly established, he has undoubtedly a right that his well-earned reputation and name should accompany his drawings. Mine, Sir, has been a career unaided by patronage, yet I am steadily progressing.—*Philip Sambell, Jun., Architect. Tyro, Jan. 12. 1835.*

ART. III. Queries and Answers.

THE Houses of the Britons were roomy buildings, of a round form, covered with a convex roof; and two edifices, exactly of this shape, were preserved, as monuments of antiquity, in the shire of Ross, within these two centuries and a half; being, as the contemporary relater of the fact expresses himself, *rotundâ figurâ, in formâ campanæ facta*. The lord's mansion was, as our superior houses generally remained to the last century, all constructed of wood on a foundation of stone, was one ground story, and composed a large, oblong, and squareish court. A considerable portion of it was taken up by the apartments of such as were retained more immediately in the service of the seignior; and the rest, which was more particularly his own habitation, consisted of one great and several little rooms. In the great one was his armoury; the weapons of his fathers, the gifts of friends, and spoils of enemies, being disposed in order along the walls. And there he sat, with his children and guests about him; listening to the song and the harp of his bards or daughters, and drinking from cups of shells. (*Whitaker's History of Manchester*, vol. i. p. 275.) Can any of your Scotch readers inform me if the two edifices "in the shire of Ross," mentioned above, still exist, and, if they do, what state they are in? —*Juvenis. London, Jan. 15. 1835.*

Abattoirs at Islington.—In two or more Numbers of the *Architectural Magazine*, reference has been made to some "abattoirs" at Islington, as great improvements: will any of your readers be kind enough to inform me where I might see the same? —*Tyro. Wilmington Square, Oct. 16. 1834.*

German Fireplaces.—Can you or any of your readers give any information respecting the mode of constructing fireplaces, alluded to in the following paragraph:—"M. F. A. Bernhardt, a distinguished architect and civil engineer of Berlin, after many years' application, has found out a method of constructing fireplaces, so that they shall not emit smoke either in the chamber or in the street, at the same time that a current of warm air is diffused throughout the building, which in purity is equal to atmospheric air. By this invention, without altering the stoves as at present constructed, two thirds of the fuel now used will create the necessary degree of warmth. It has been applied with the most complete success in Prussia." (*New Monthly Mag.* for Dec. 1834, p. 531.) Is this M. Bernhardt the same who was in London a few years ago, and took out a patent for raising water to a great height at little expense, but was unsuccessful in carrying it into effect?—*Edward de Ridder, Architect, &c. East Street, Taunton, Dec. 16. 1834.*